Gotha G.I

By P M Grosz

WINDSOCK DATAFILE 83

FOREWORD

ON THE COVER:
Flying Feodora
The Gotha G.I boasted an unmistakeable profile and must have presented a dramatic appearance in the air for friend and foe alike. G.I 42/15, nicknamed '*Feodora*', saw limited service on the Eastern Front in 1915 but details of its operational career are elusive.
Painting by Brian Knight (GAvA) of the Guild of Aviation Artists

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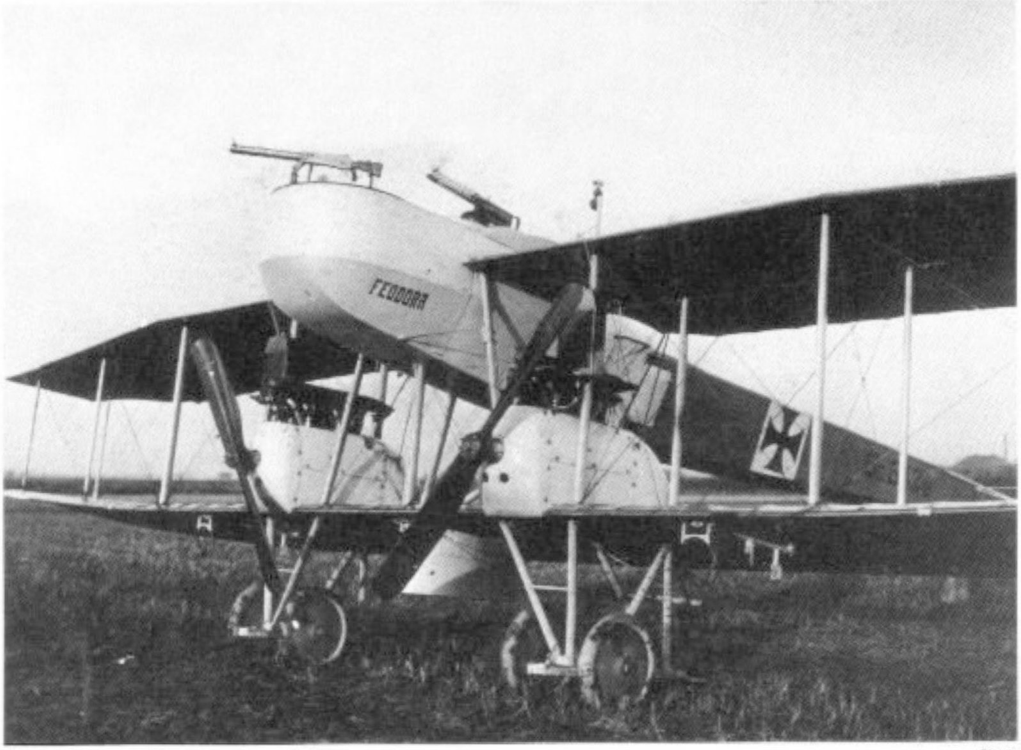
1. **Gotha G.I 42/15 armed with a Parabellum LMG 14 in the nose and a Spandau LMG 08 in the middle position. Underwing bomb racks complement the central bomb container.**

2. **An interesting photograph of the Friedel-Ursinus B.1092/14 probably taken just after completion and before application of the serial number on the fuselage. The date is late January 1915 with vestiges of snow on the ground. The Spandau machine gun in the nose is a wooden mock-up. Unfortunately, the film was double exposed leaving several ghost images on the print.**



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The famous, and much feared, Gotha G.II - G.V bombers of WWI have already been meticulously documented by Peter Grosz in our widely-acclaimed 1995 *Special* and now the author completes the story with the Friedel -Ursinus and G.I battleplanes. Here the genesis of the Gotha bombers is revealed and although its operational role in the war was limited, the G.I paved the way for the successful line of twin-engined bombers that were so active over British soil in the latter years of the war. Standing alone, the G.Is cannot be considered a roaring success but Gotha gained much valuable technical experience building them. When their chief engineer, Swiss-born Hans Burkhardt, modified the crash remains of G.I 9/15 by placing its fuselage on the lower wing, it proved more practical and thus the stage was set for the G.II and its derivatives.

Ray Rimell, September 2000.

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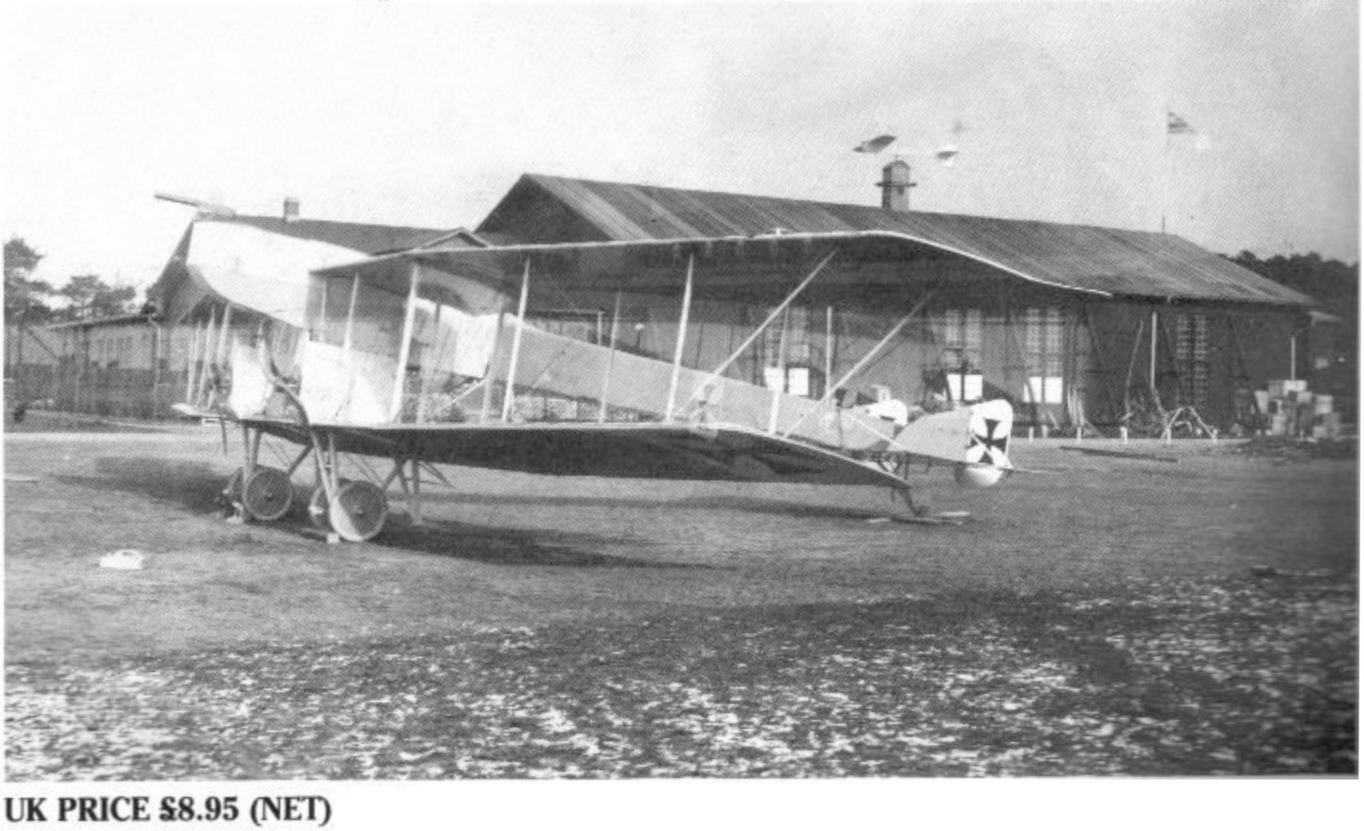

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HISTORY

The Type III *Kampfflugzeug*

In the spring of 1914, the German army initiated discussions to determine the role military aircraft would be expected to play in time of war. In March 1914, the *Verkehrstechnische PrüfungsKommission* (*VPK*–transport technical investigation commission), *Inspektion der Fliegertruppen* (*Idflieg*–inspectorate of aviation troops) and aviation industry executives reached a concensus. In turn, the *VPK* issued a directive outlining the tactical role aircraft would be expected to perform and gave broad technical specifications to serve as guidelines for their development.(1)

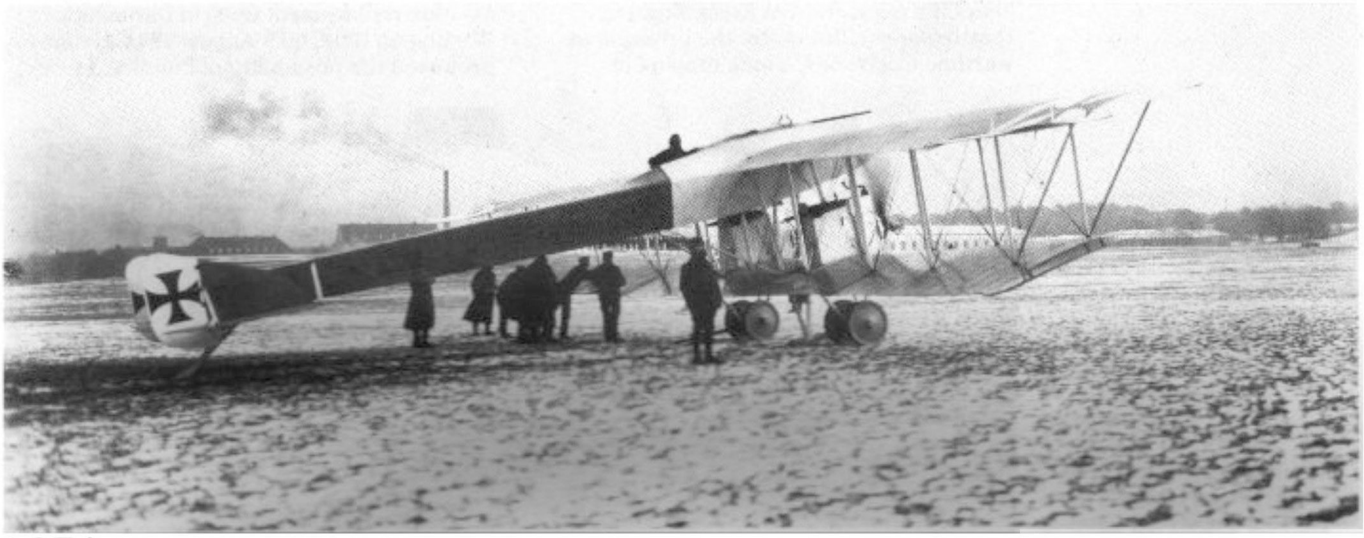
Specified by the *VPK* were three categories of aircraft:

Typ I, a fast two-seater powered by an engine of 130-hp, intended for extended flights, to carry destructive weapons, or photographic and wireless equipment.

Typ II, a light, very maneouvrable two-seater for short flights, with quick take-off and landing characteristics. Designed to fly low within range of enemy fire and armed for self-defence.

Typ III, which concerns us here, a three-seater for long flights, designed to lift a heavy load and to fly low within range of enemy fire. Wingspan not specified but to comply with army ground transport requirements, speed over 120 km/h, climb 800 metres in 10 minutes, a duration of 6 hours, useful load 450 kg and an engine up to 200 horsepower. Assembly in 1.5 hours by five men.(2)

The German central army office approved the *VPK* recommendations on 28 April 1914



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***3.* The Friedel-Ursinus B.1092/14 preparing for take-off on the *FEA* 3 airfield at Darmstadt. The date is probably 5 February 1915, a few days after the maiden flight on 30 January.**

***4.* No, this is *not* the annual *FEA* 3 mustache competition but Oskar Ursinus (centre with short leather jacket) and his stalwarts celebrating the team's completion of the Friedel-Ursinus B.1092/14.**

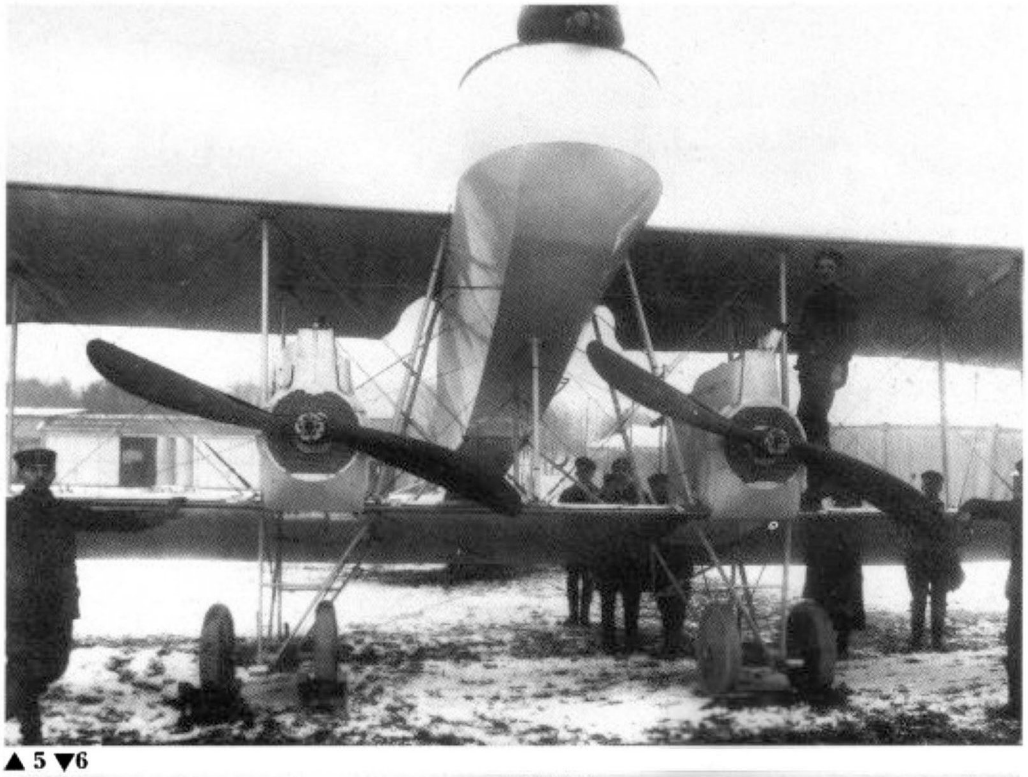
with the mandate that all possible means be employed to develop these aircraft as rapidly as possible. Since B-type biplanes capable of fulfilling the *Typ I* requirements were already on hand and in the process of undergoing further refinement, the *Fliegertruppe* planned two competitions. The first, for the *Typ II* (light aircraft), was scheduled in November 1914. The *Typ III* (three-seater) competition was slated for the spring of 1915 to give the aircraft firms sufficient time to develop the larger and more complex aircraft.

By mid-1914, engines of 200 horsepower sufficiently light and reliable for aircraft use were not available. German designers were compelled to use two or more engines to obtain enough horsepower to lift three crew members, a useful load of 450 kg and fuel for six hours duration as spelled out in the *Typ III* specification. When the war began in August 1914, a number of aircraft manufacturers were well along with the design of twin-engined *Typ III* aircraft, generally referred to as *Kampfflugzeuge* (battleplanes). But under the pressure of wartime exigencies, a long drawn-out competition was out of the question. To expedite progress, *Idflieg* actively supported the construction of *Typ III* prototype aircraft on a fairly large scale and manufacturers responded with alacrity.(3)

The Friedel-Ursinus type FU

The Friedel-Ursinus *Kampfflugzeug* was the brainchild of Oskar Ursinus, a civil engineer and founder of the popular *Flugsport* magazine in December 1908 which he continued to edit until 1944. Using the *Flugsport* medium, considered the most influential pre-war German aero journal, Ursinus cleverly raised awareness for German military aircraft by lauding French achievements and closely monitoring worldwide progress while mildly criticizing national neglect of heavier-than-air aviation.(4)

On 1 August 1914, Ursinus, while serving as a technical referee for the *Ostseeflug Warnemünde*, received mobilization orders to report to *Flieger Ersatz Abteilung 3 (FEA* – aviation replacement unit) in Darmstadt. Wasting no time, on 9 August 1914, Ursinus proposed the possibility of building a twin-



5. Friedel-Ursinus B.1092/14. The engines and forward fuselage were protected by light armour plating in keeping with the *Typ III* ground attack specification. Both airscrews of the 100-hp Mercedes D.I engines turned in a counter-clockwise direction. The small triangular frame behind the port undercarriage is an entry step; modellers take note!

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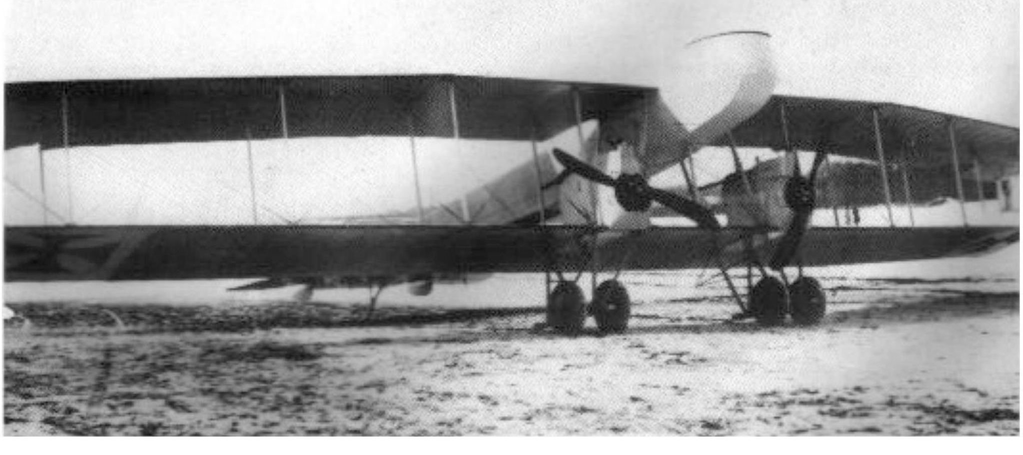
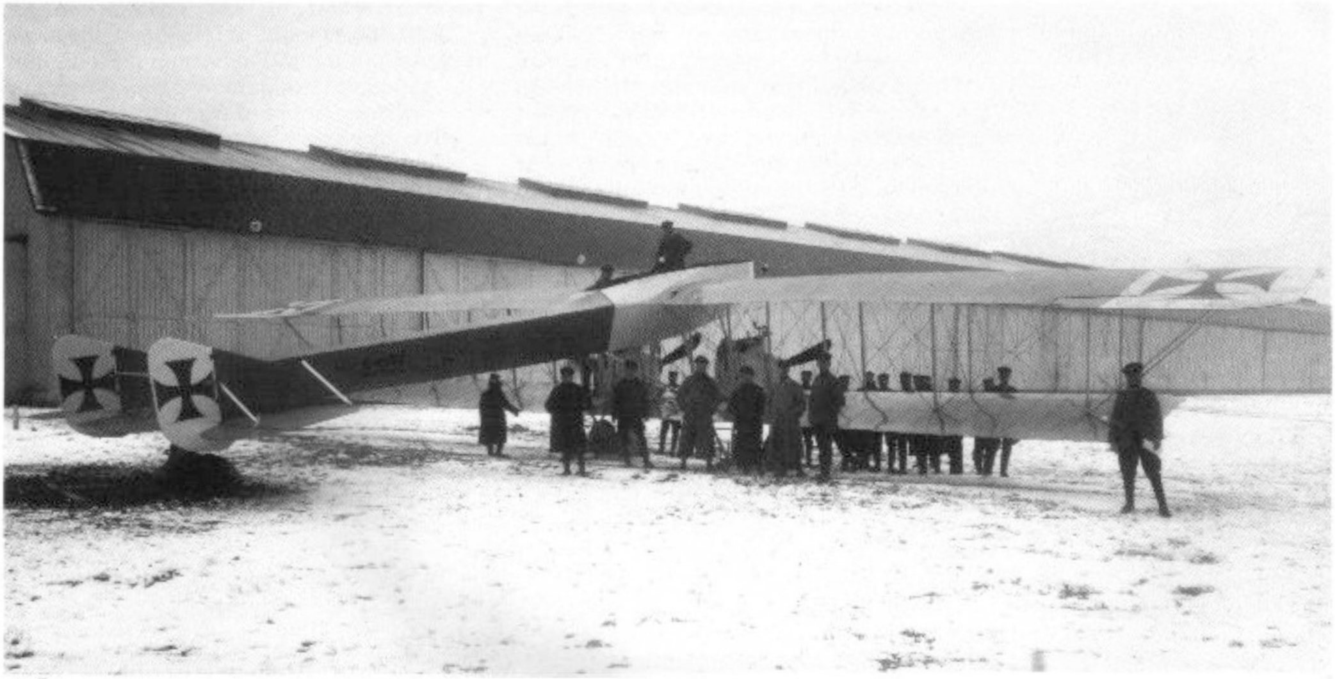


6. The radiators mounted in the armoured engine nacelles of the Friedel-Ursinus B.1092/14 proved inadequate with the coming of warmer weather and were replaced. The sweepback of the outer upper wing panels was 10 degrees.



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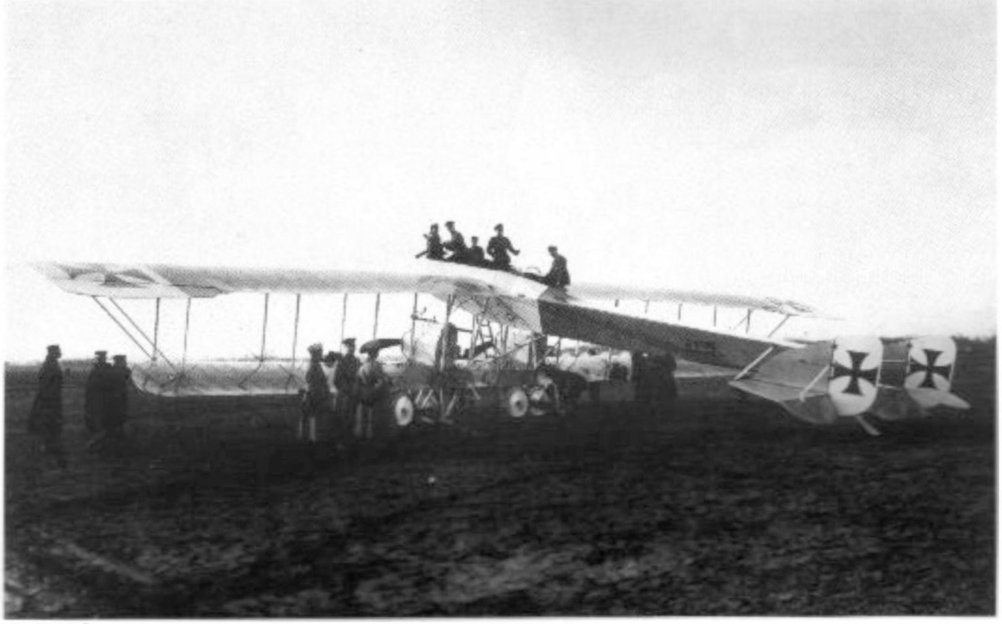

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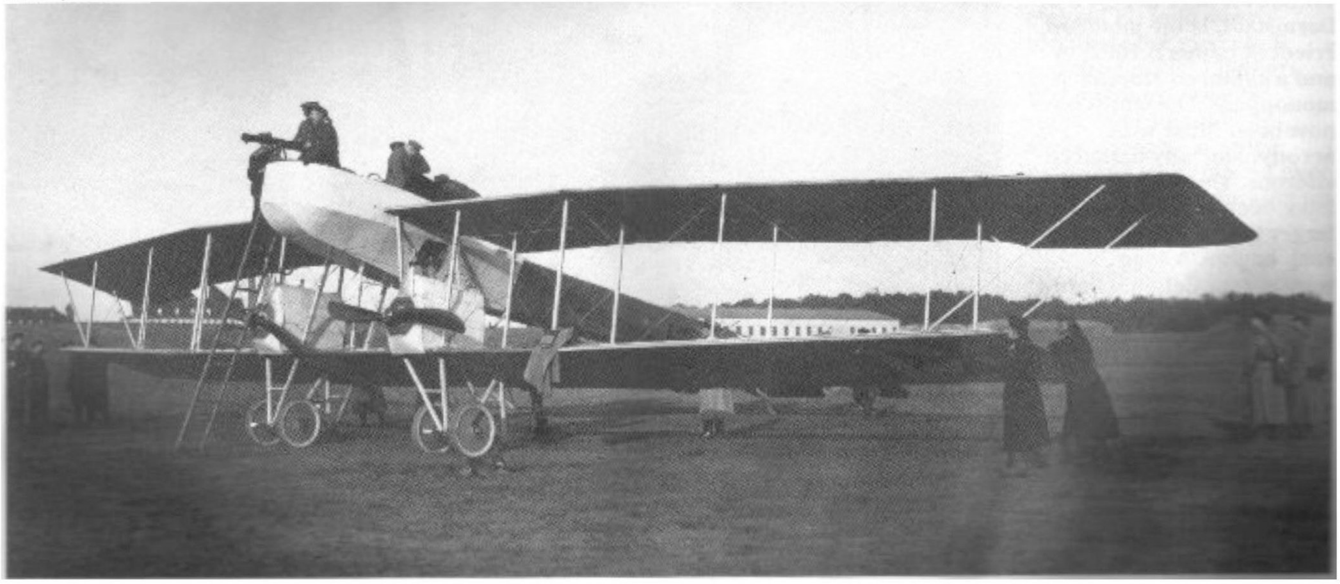
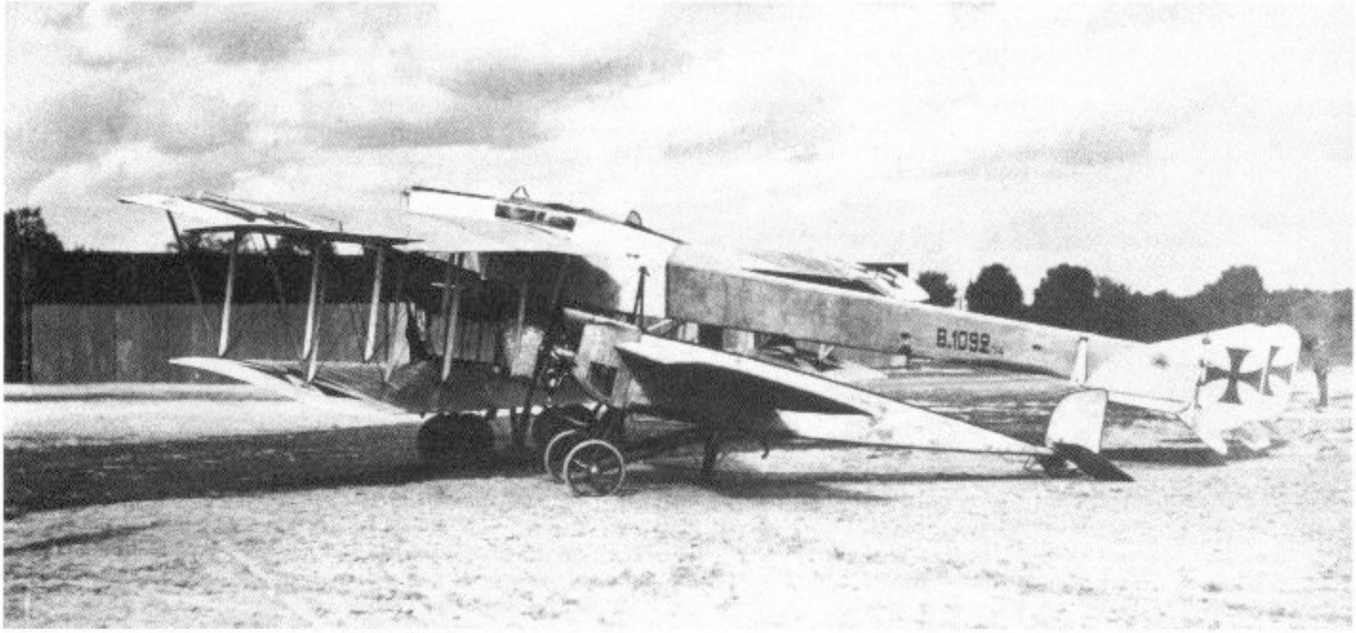


7. **The Friedel-Ursinus B.1092/14 in front of the *FEA* 3 hangars in Darmstadt.**

8 and 9. **Like ants crawling over a stricken praying mantis, Dr. Heller and his *Idflieg* cohorts dissect the fabulous insect. Taken on 20 February 1915, Ursinus is in the nose extolling the unrestricted field of fire of the Friedel-Ursinus B.1092/14.**



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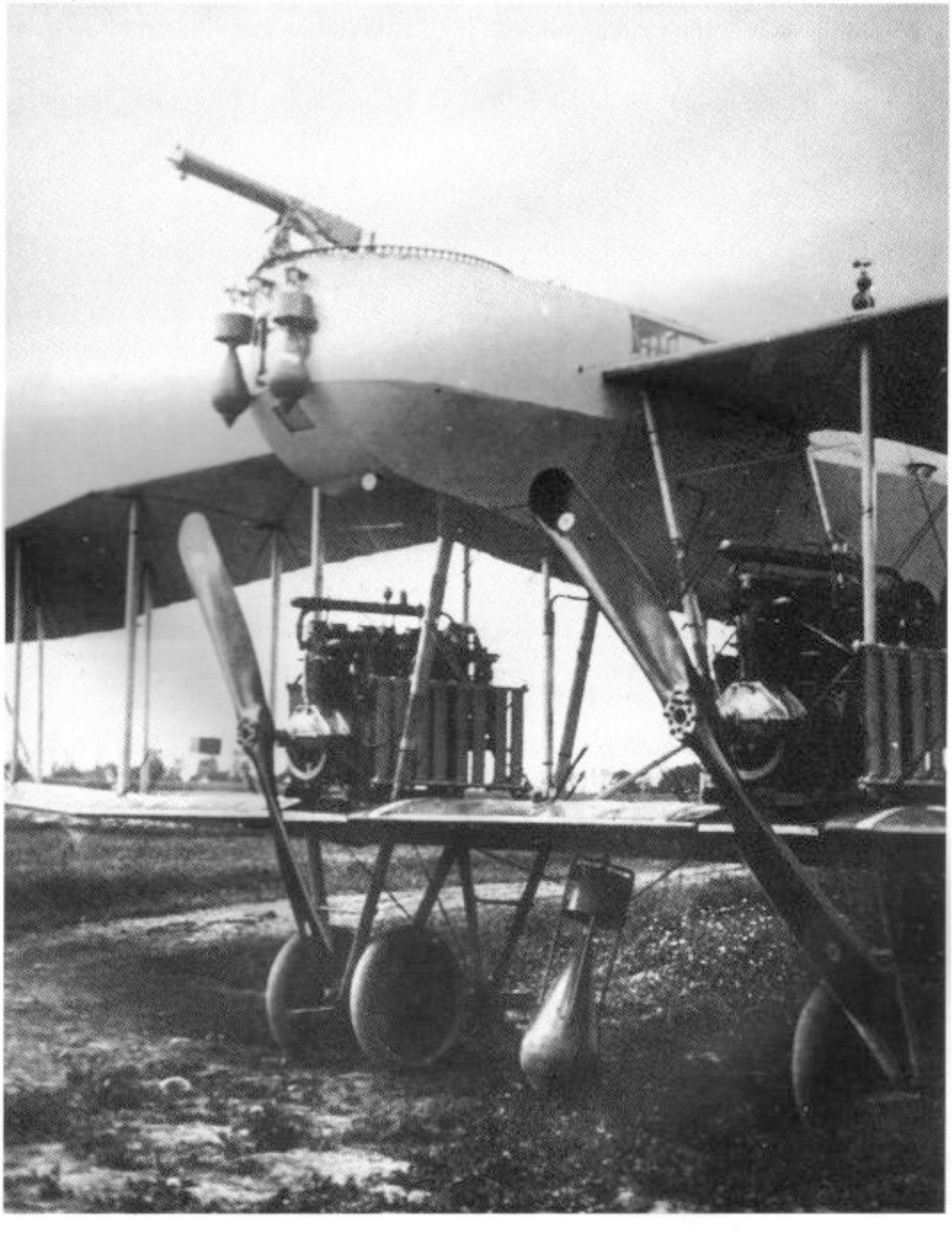
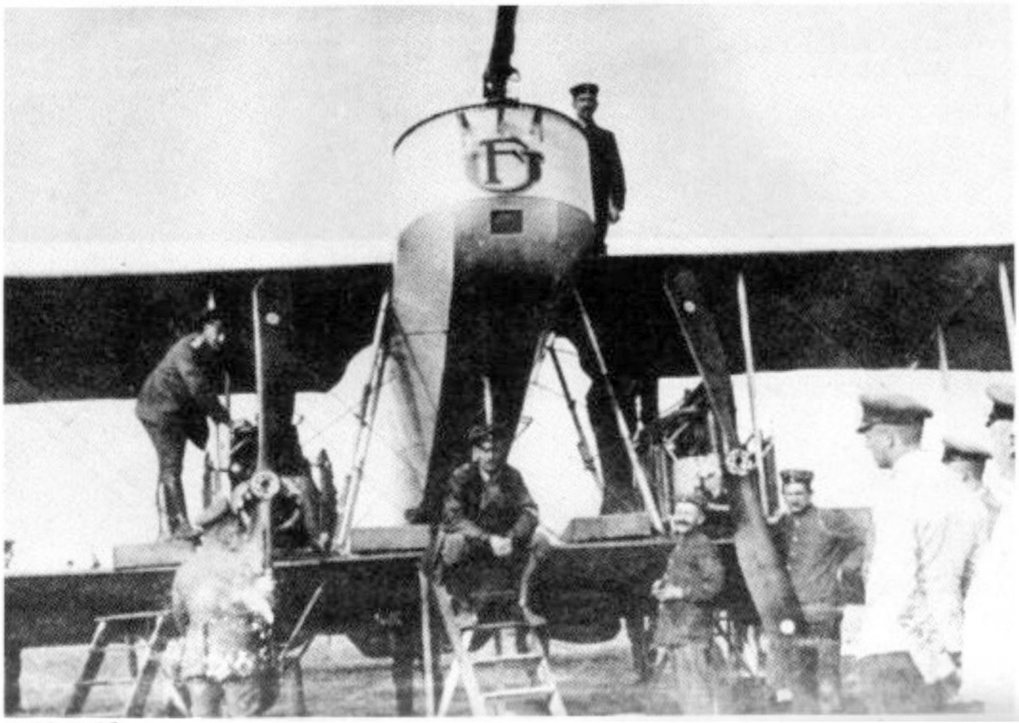


10. Shown here at *FEA* 9 in Darmstadt, is the modified Friedel-Ursinus B.1092/14 and a captured Morane monoplane. The wings have now been fitted with aerodynamically-balanced ailerons. The nose radiators have been replaced by larger twin radiators on each engine. A long transparent Cellon window allows light to enter the centre cockpit.

11. Friedel-Ursinus B.1092/14. It is not known how the 50 kg Carbonit bomb, shown here propped against the lower wing, was carried if at all. A standard Spandau MG 08 adorns the nose turret.

engined *Kampfflugzeug* (originally conceived as a civil floatplane) to *Major* Friedel, the new *FEA* 3 commander. Ursinus's suggestion to employ military personnel (including many mobilized men from the aviation industry with little to do) was accepted by Friedel. As a result, the unusual Ursinus design, patented by him in 1914, would go down in history as the Friedel-Ursinus *Kampfflugzeug*, more often referred to as type FU.(3) In the patent Ursinus claimed that the high fuselage position negated the undesirable lowering of the centre of pressure as speed was increased and eliminated the unfavourable effect of the slipstream turbulence on the upper wing caused by the uneven contour of the upper fuselage. The high fuselage placement allowed the airscrews to be moved closer together (almost touching). In the event one engine failed, the asymmetric forces were reduced and the adjacent slipstream over the tail surfaces maintained steering control. Later, Ursinus pointed out the advantageous concentration of mass afforded by the closely-spaced engines. The unencumbered gunner's position in the nose possessed an unsurpassed field of fire and the chrome-nickel, armour-plated fuselage fulfilled the *Kampfflugzeug* ground-attack requirement.



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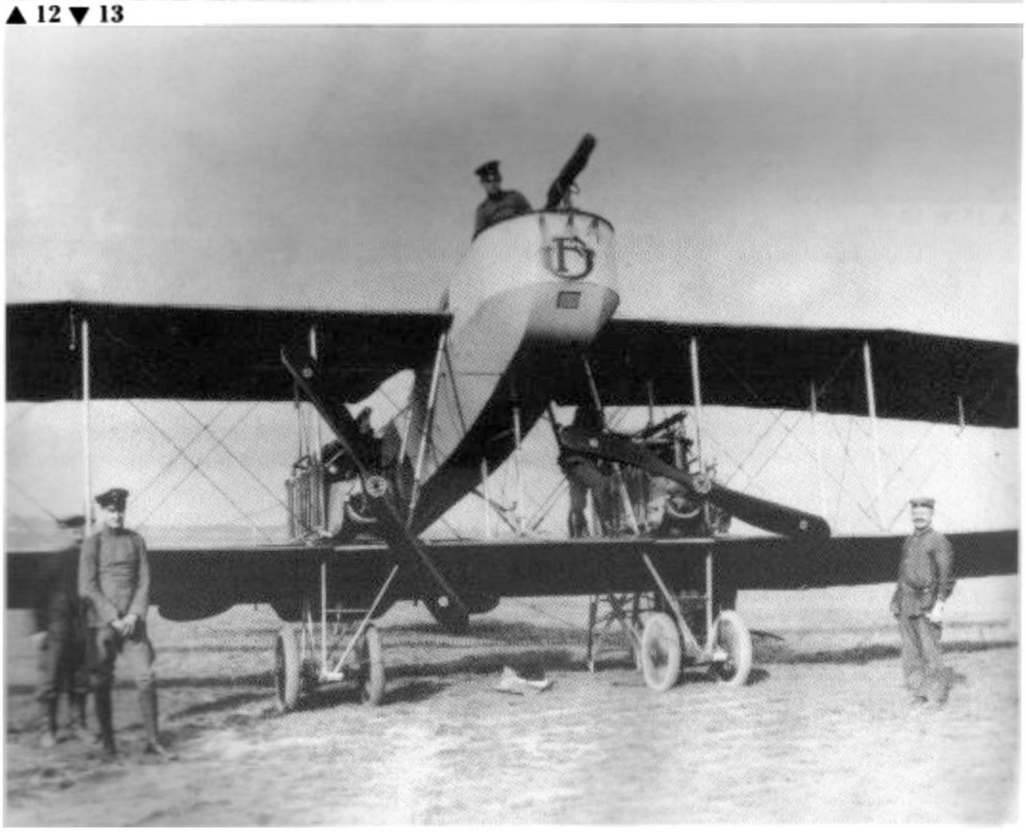


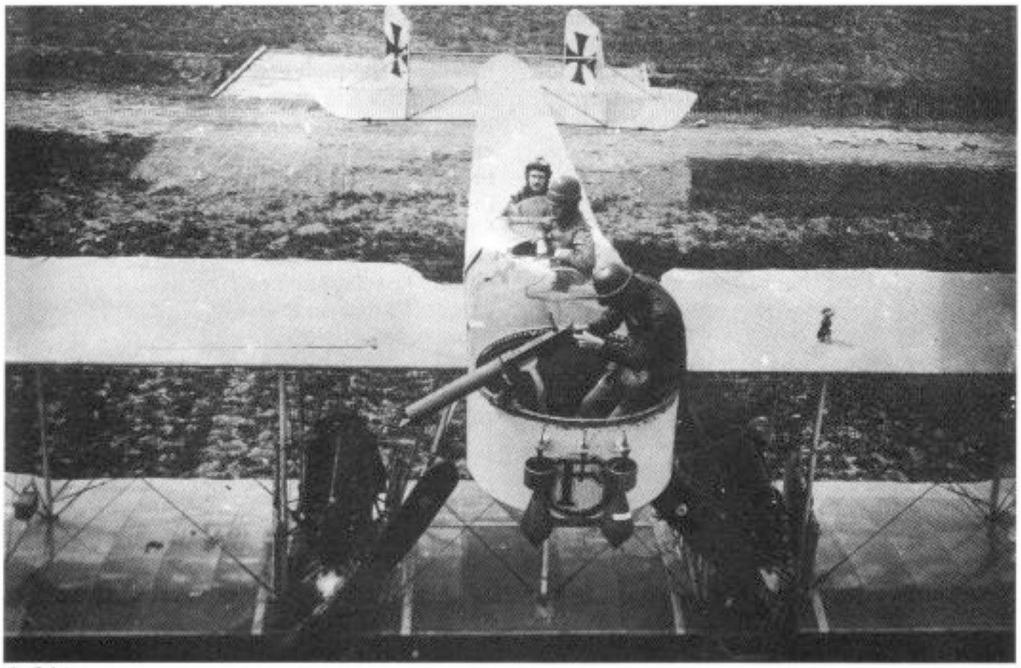
12. **Friedel-Ursinus B.1092/14. Just below the three bomb hooks, the elegant FU logo clearly identifies the aircraft. It required several ladders and much exercise to service the aircraft. To avoid damage, wooden platforms were placed over the wings while working on the engines.**

13. **Probably on its way to the Eastern Front, the Friedel-Ursinus FU was photographed at *Flieger Ersatz Abteilung* 4 in Posen. The nose fitted with its three bomb holders is a small clue that the role of the twin-engined *Kampflugzeug* was gradually changing to a *Bombenflugzeug*.**

14. **Friedel-Ursinus B.1092/14. One doubts if the crash helmets would provide much protection in the event of a flip-over. The large-diameter gun turret, designed to hold a cannon, offers little protection for the gunner. One air pocket and he's gone! The question is: what function *did* the middle crew member perform? To pass the word from front to back and *vice-versa?***

15. **Parts of the wrecked Gotha G.I 9/15 stored in the company hangar and awaiting repair.**

16. **Excitement on the Gotha airfield as three Gotha G.I aircraft stand ready for flight testing. It is possible that these were the first three built, G.9/15, G.10/15 and G.11/15, all of which were sent to *FEA* 7 in Cologne to defend the Krupp steel works.**



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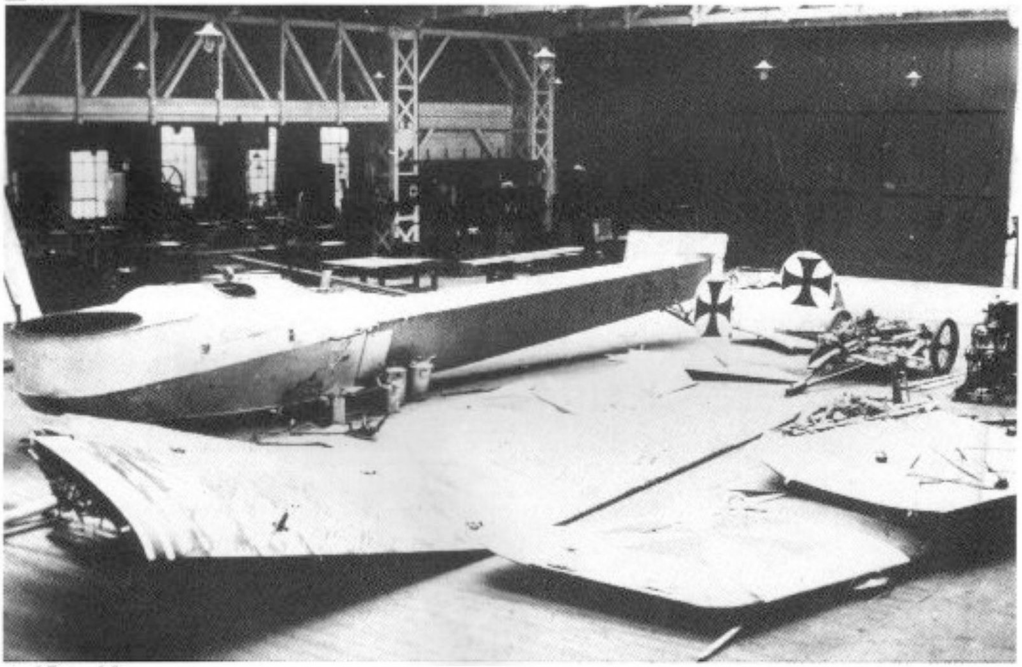

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Surely *Major* Friedel and Ursinus had been aware of the *VPK* specifications and had designed the Friedel-Ursinus FU accordingly. Another clever device, invented by Ursinus, was the leaf-spring skid fitted behind both undercarriages to reduce the load on the tailskid. According to *Flugsport* this prevented damage and deformation of the fuselage. In addition, the lightly-loaded tailskid facilitated ground manoeuvres.

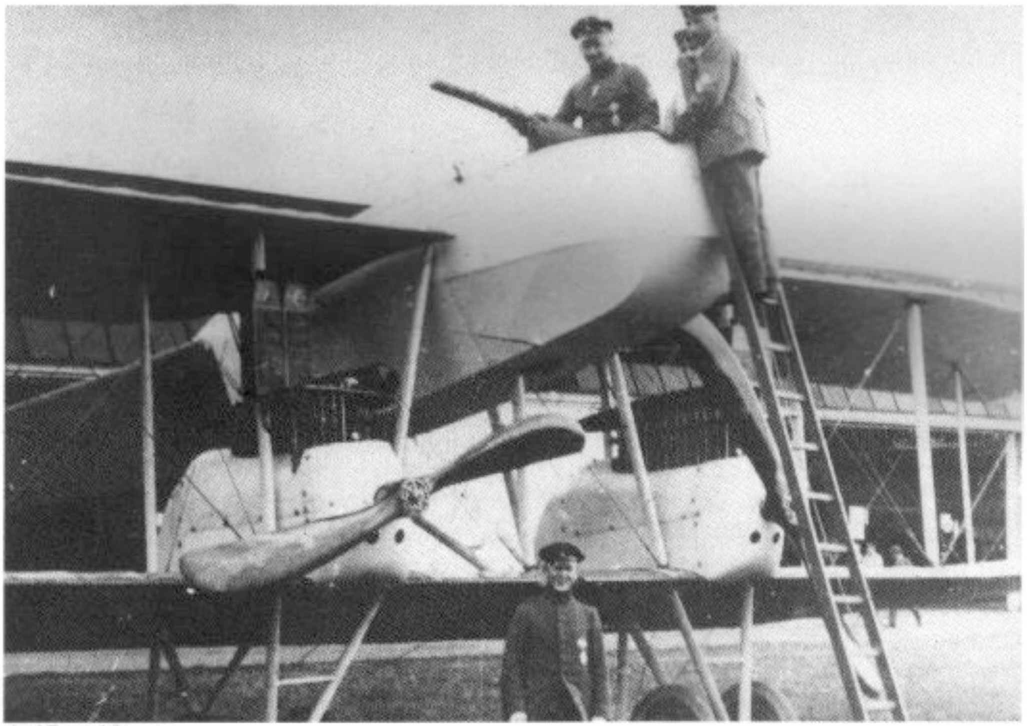
Ursinus started design work immediately, assisted by the pre-war flyers Erlewein and August Nischwitz as design technicians.(6) The structural drawings were sufficiently advanced by 1 September for *FEA* 3 personnel to begin construction.(7) The assignment of the military designation B.1092/14 to the Friedel-Ursinus aircraft is an indication that *Idflieg* sanctioned the programme and probably provided construction funds as well.

The maiden flight of the FU *Kampfflugzeug* was performed by pilot Herold on 30 January 1915. The contention that the type FU was Germany's *first* twin-engined aircraft to fly is challenged by a statement in the AEG company history that a twin-engined AEG *Kampfflugzeug* (type K.I) had performed "flights with good results already in January 1915."(8) For what it is worth, *Fliegertruppe* records show that the AEG twin-engined bombers arrived at the Front some three months before the Gotha G.I; see **Table 1**.

Idflieg sent Dr. Heller to Darmstadt on 20 February 1915 to inspect and report on the FU *Kampfflugzeug*. Two 100-hp Mercedes D.I engines, mounted on the lower wing, were lightly armour plated as was the fuselage from nose back to the pilot's seat. The two crew members, gunner and pilot, had individual cockpits situated behind the nose turret. The aircraft featured stick control, twin rudders and ailerons mounted on the top wing. Airspeed was 90-95 kmh. Two separate gravity tanks provided fuel for 6 hours duration. According to Heller, the advantages were:

1, good visibility and field of fire to all sides.

2, because the engines are close together,



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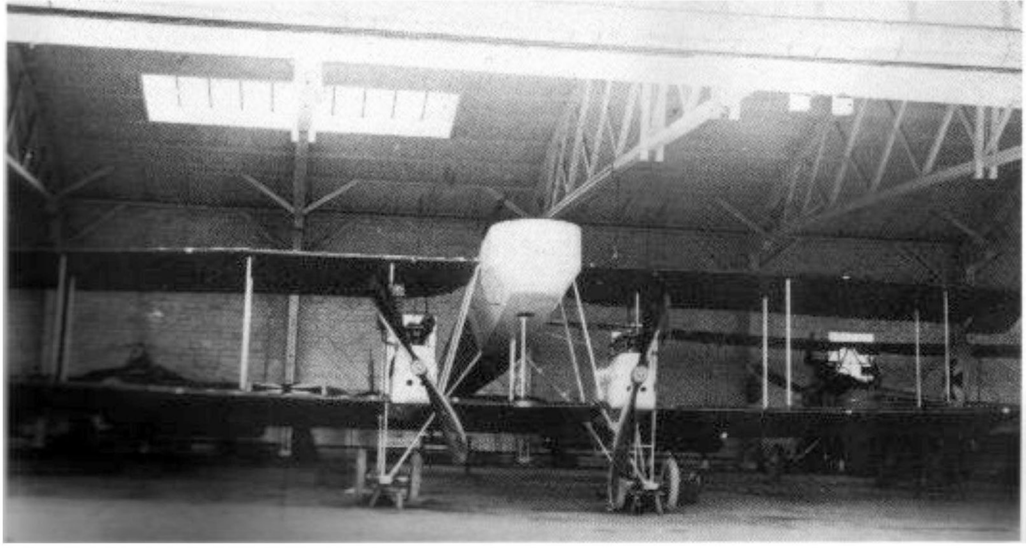


17. **A familiar scene with ladder. The Gotha G.I 10/15 was photographed while attached to *Sonderstaffel* S at *FEA* 7 in Cologne.**

18. **The Gotha G.I01/15 was powered by two counter-rotating 150-hp Benz Bz.III engines. Twin radiators are mounted above each engine.**

the aircraft could probably fly on one engine. The *dis*advantages were:

1, dangerous to gunner in event of a crash.

2, fuselage structure was weak and not sufficiently torsion resistant owing to the small cross section.

3, ailerons too small and of limited movement.

4, stick control not suitable for large aircraft.

5, two right-hand turning engines.

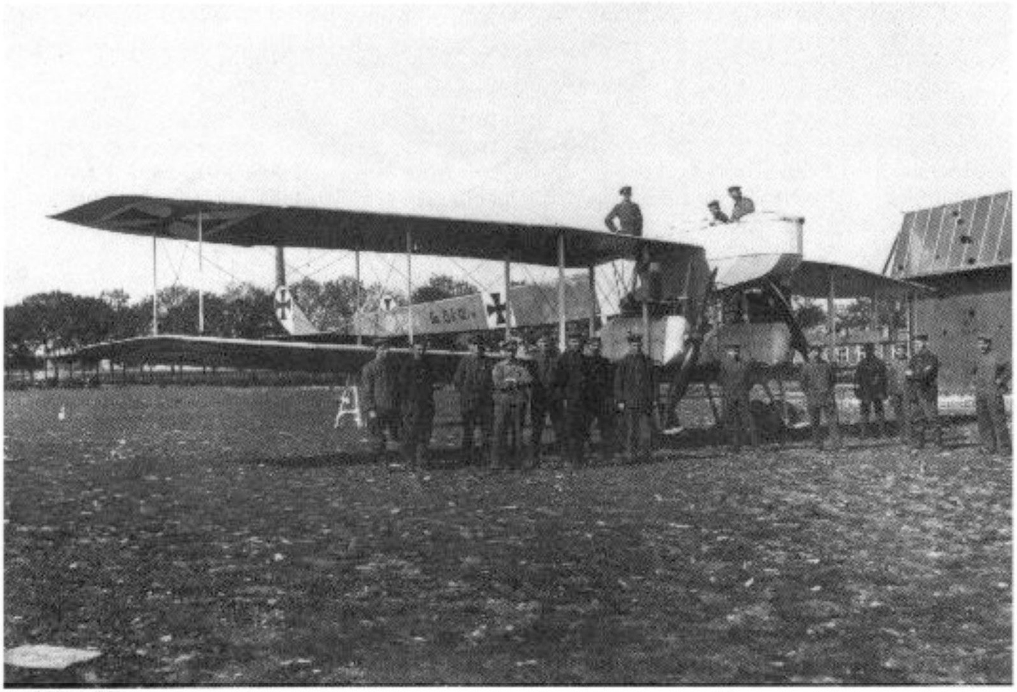
6, to achieve higher speed, 150 hp engines are necessary.

7, armour plating can be removed.

Heller felt the advantages outweighed the disadvantages because 'the type FU was a noteworthy design and should be employed solely for fighting (*Kampf*) purposes. The aircraft requires a first-rate pilot. Further development of the type FU is recommended.' The stage was set for the Gotha G.I. According to the Ursinus

19. Gotha G.I 12/15 was delivered to *FEA* 3 in Gotha on 24 August 1915. There is a round cover over the nose turret, the purpose of which is unknown.

20. Gotha G.I 12/15 showing signs of wear and tear. Below the top fuselage step is the Ursinus trademark. This photograph provides a good view of the leaf-spring landing skid on the undercarriage. A single radiator is mounted over each engine.



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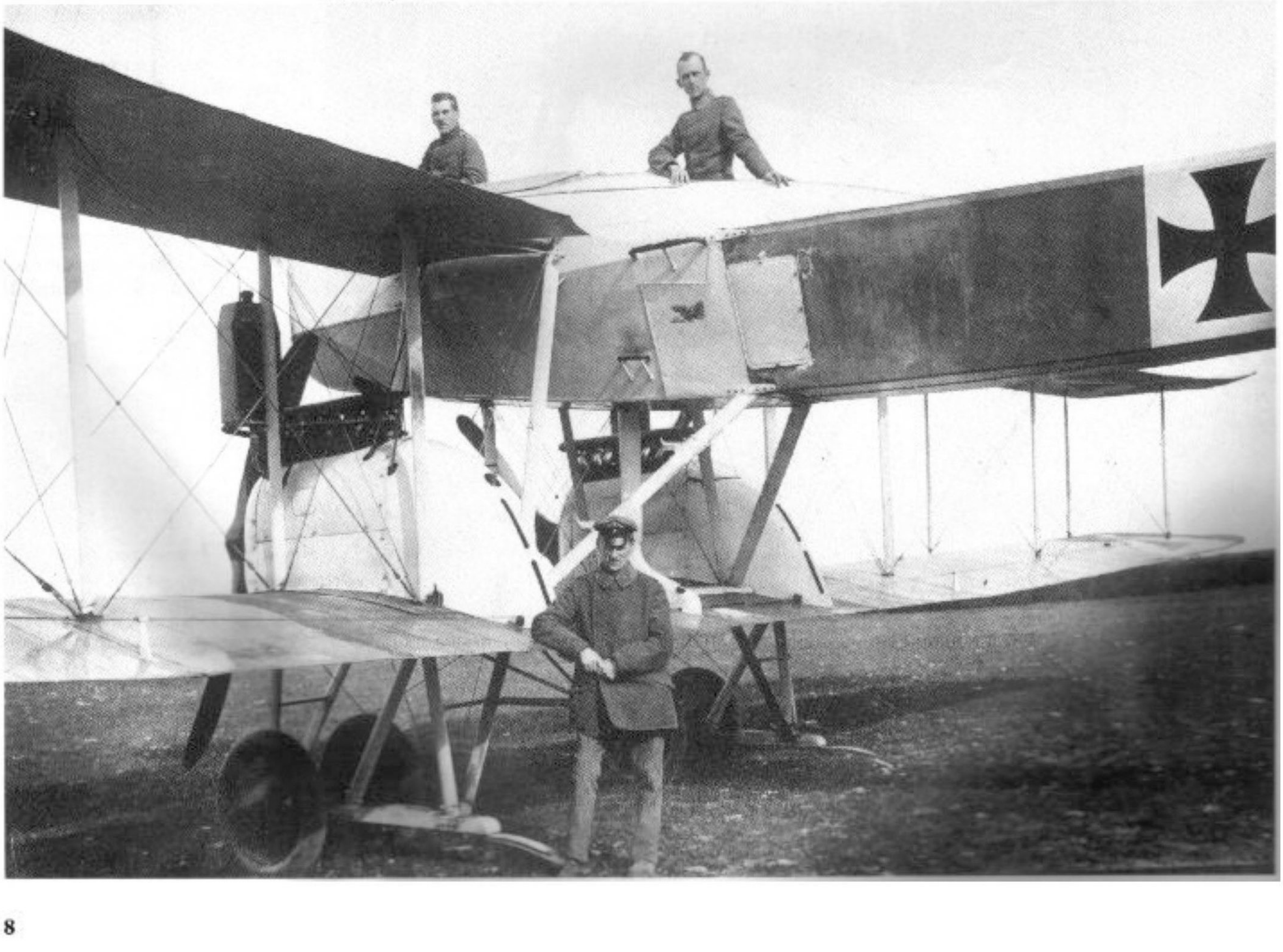
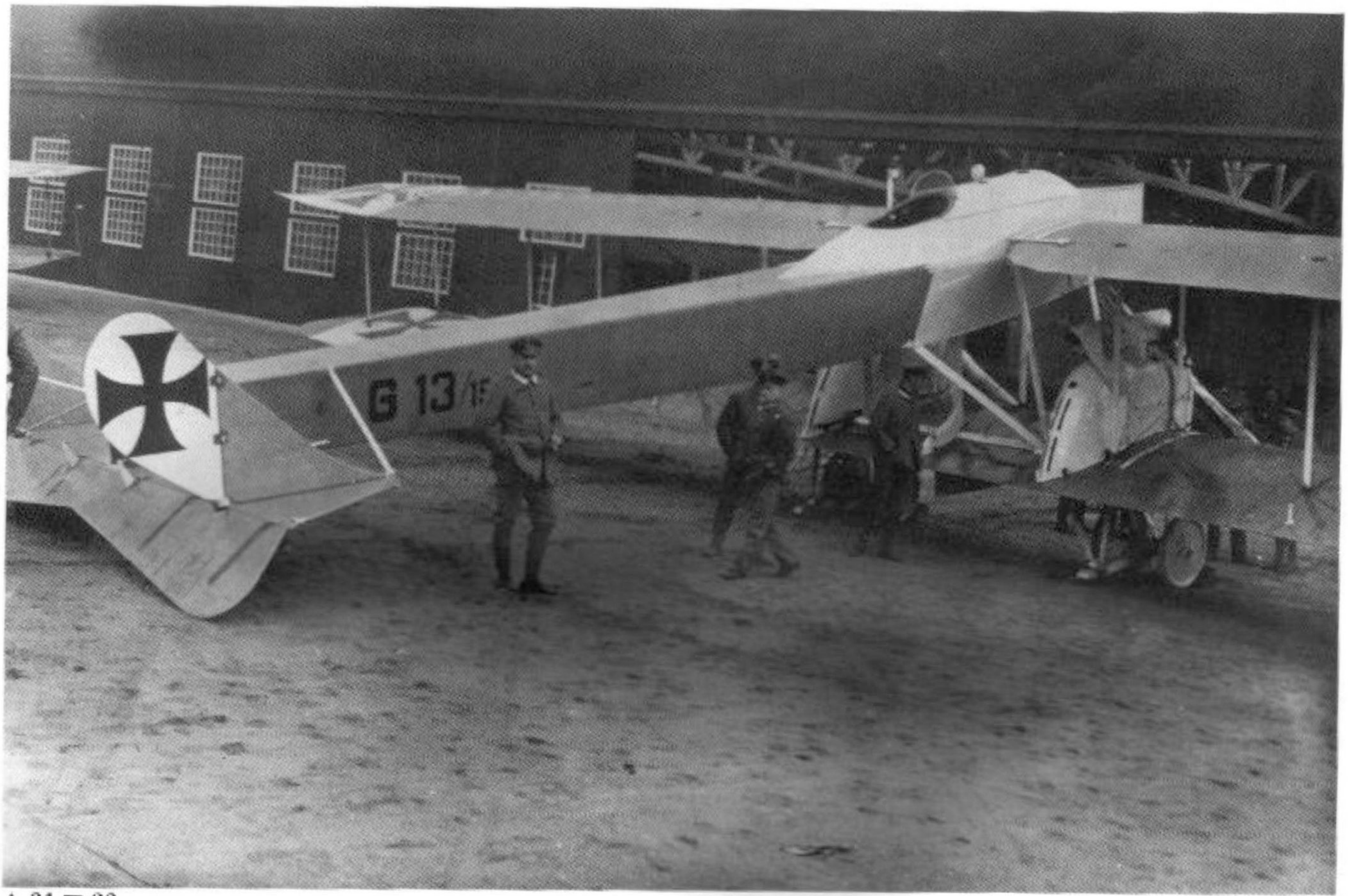


biography, the type FU was sent to the airfield in Ujatz, near Lodz for operational trials on the Russian Front but further information is lacking.

The Gotha G.I

Ursinus's son Werner told the author that the type FU licence, offered to Fokker and Gotha, had greater appeal for Gotha director Albert Kahnt who signed a production license in March 1915. The transfer of *FEA* 3 to Gotha in February 1915 surely brought some personnel who had worked on the type FU to the new production site.(9)

On 1 April 1915, *Idflieg* awarded Gotha a contract for six Gotha G.I aircraft (type UKL or GUK, both company designations were used), five to be powered by two 150-hp Benz Bz.III and one by two 160-hp Mercedes D.III engines. The specifications called for a crew of two, armament of one machine gun, a 200 kg bomb load, 150 kg of armor protection (in keeping with the battleplane role) and a maximum speed of 125 km/h. The delivery



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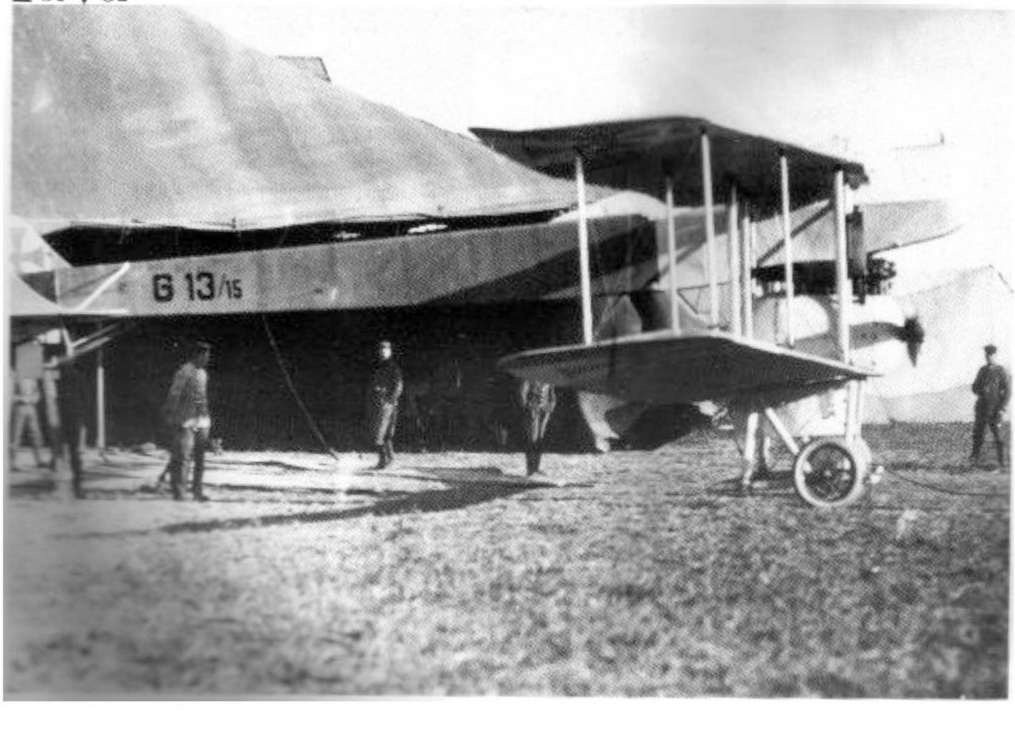
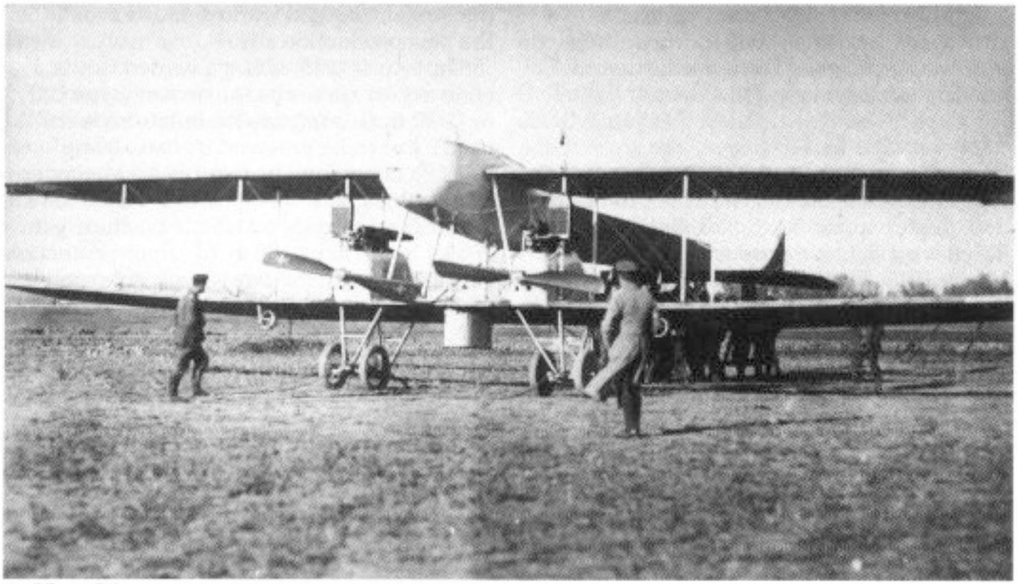


***21 and 22.* Gotha G.I 13/15 was delivered to *FEA* 3 on 2 September 1915 and then flown to the Eastern front. On the way it landed at Schneidemühl where this photograph was taken. The different tail empennage and crew compartment as compared to the Friedel-Ursinus B.1092/14 are evident. Between the undercarriage, a streamlined bomb container is barely visible.**



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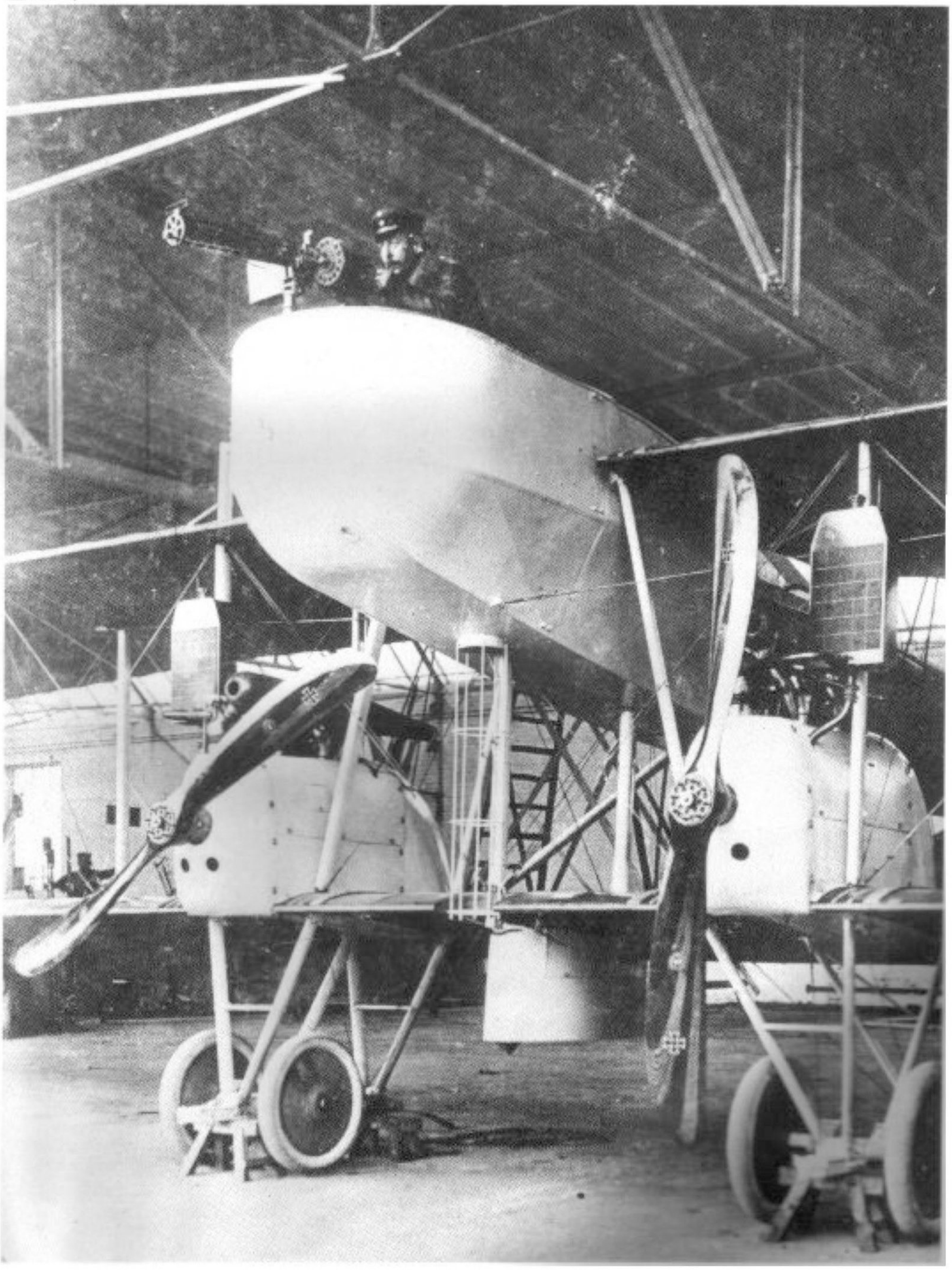


23. **Gotha G.I 13/15, photographed during operations on the Eastern Front, shows the makeshift bomb container mounted between the undercarriage.**

24. **Eschewing the battleplane role, some Gotha G.I aircraft were converted to bombers. This Gotha G.I sports a bomb-dropping chute and a bomb container from which the nose of a 20 kg Carbonit bomb protrudes. In the nose turret, Ursinus burns off some aggressive juices.**

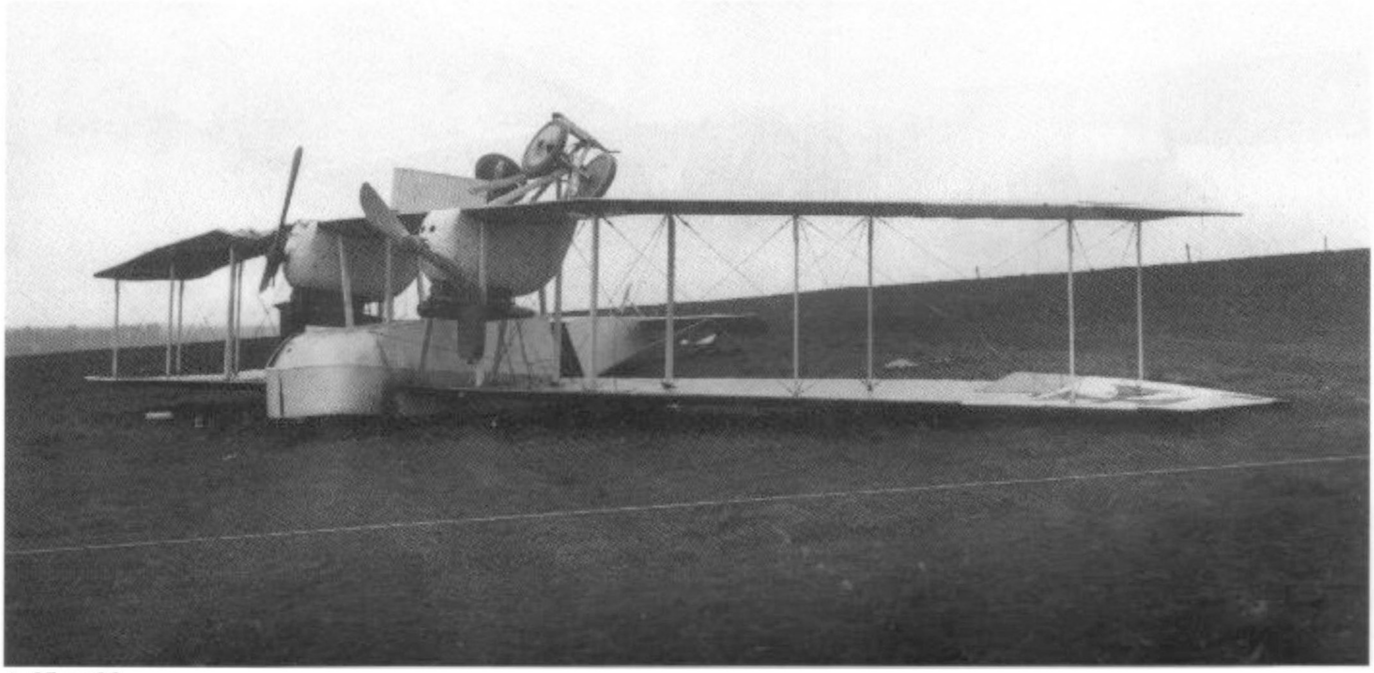
price was M 32,000 less engines. Ursinus worked with Gotha engineer Hans Burkhardt to prepare the manufacturing drawings. Only minor structural changes were made. After acceptance, the Gotha G.I *Kampfflugzeuge* were delivered as follows:

G.9/15	27 July	to *FEA* 7
G.10/15	31 July	to *FEA* 7
G.11/15	10 August	to *FEA* 7
G.12/15	24 August	to *FEA* 3
G.13/15	8 September	to *FEA* 3
G.14/15	8 September	to *Armeeabteilung* Falkenhausen.

The three aircraft dispatched to *FEA* 7 in Cologne joined *Sonderstaffel* S (also *Kampfstaffel* S 1) to defend the Krupp works from air attack. The two aircraft delivered to Gotha either remained as trainers or were dispatched to an operational unit from there.

The second series of G.I *Kampfflugzeuge*, designated G.I 40-45/15 and powered by 150-hp Benz Bz.III engines, was ordered in 15 July 1915. Specifications were the same as those for the first series, with the added directive that 'an increase in performance was desired.' The six Gotha G.Is, accepted between 22 September and 5 November 1915, all remained at *FEA* 3 in Gotha. It is not known why this should be so, but by now the battleplane concept had been found wanting and twin-engined aircraft were in the process of being converted or designed as dedicated bombers.

The third and last series of Gotha G.I aircraft, designated G.100-105/15 and powered by 160-hp Mercedes D.III engines, were ordered by *Idflieg* on 17 October 1916.(10) The specifications now stressed the bombing role and the bomb load was increased to 350 kg. For defensive purposes a third crew member and a second machine gun were specified. *Idflieg* requested that



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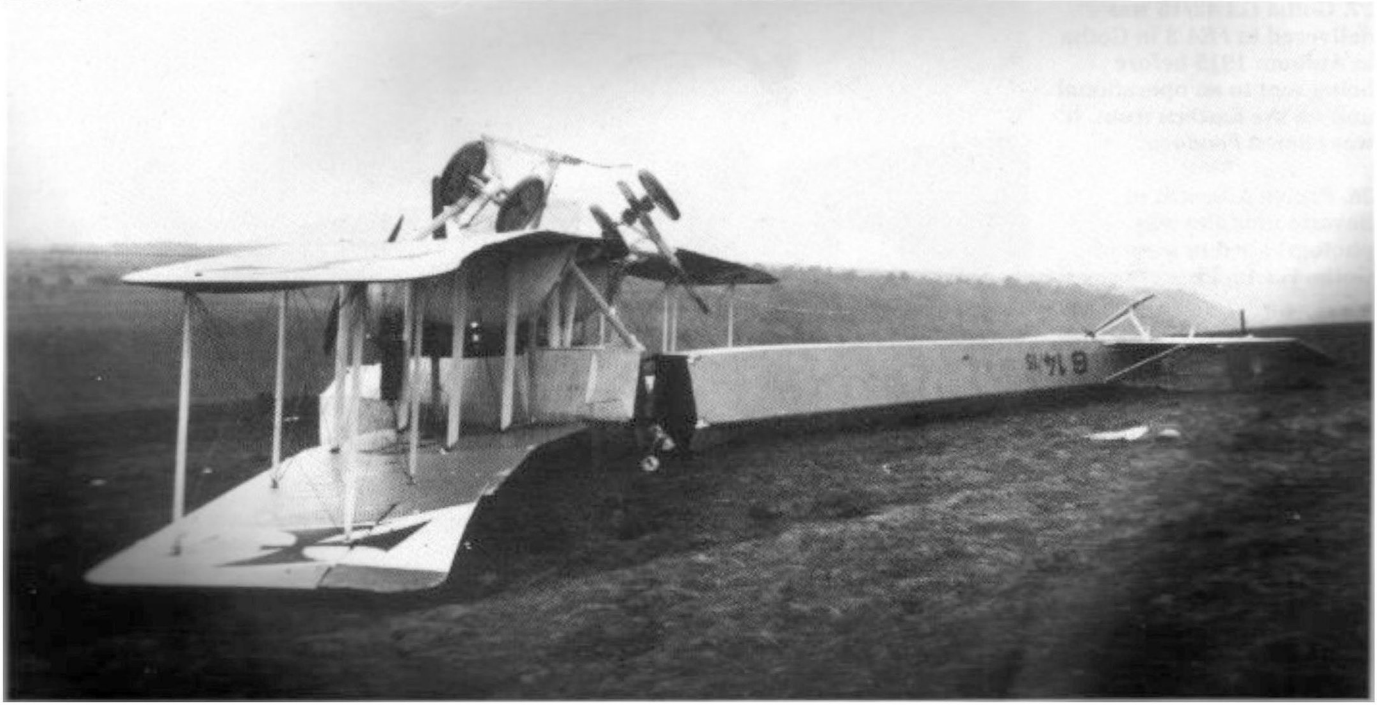
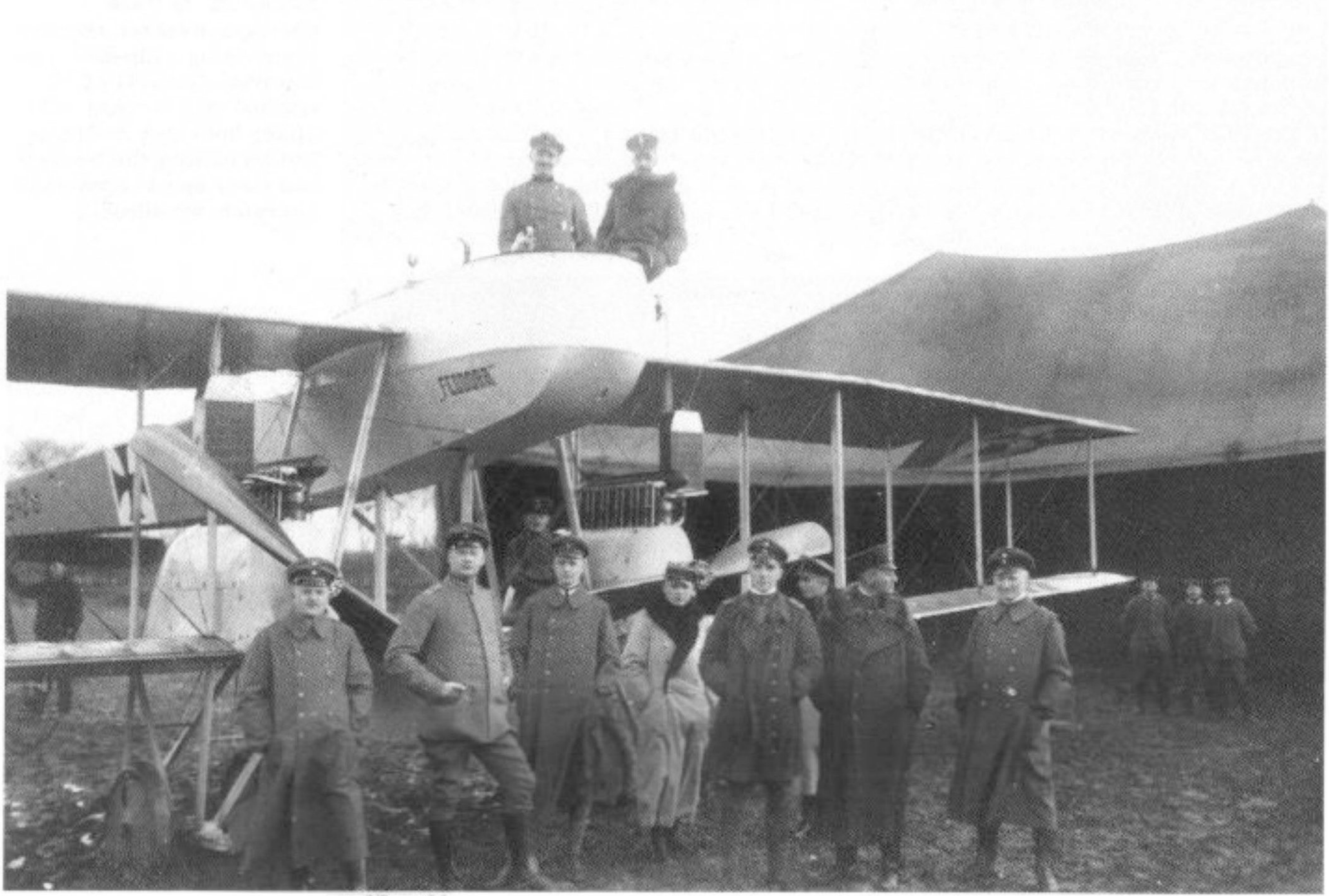


25 and 26. **As these photographs show, chances of surviving a flip-over were marginal. Gotha G.14/15 crashed on 3 October 1915 killing both crewmembers. During landing the fuselage had come apart causing the aircraft to somersault.**

'measures be taken to make it possible to install a machine cannon in addition to a machine gun.' Five machines were dispatched to the *Prüfanstalt und Werft* (test establishment and workshop of *Idflieg*) at Döberitz and one to *FEA* 1 at Döberitz between 24 January and 20 March 1916.

The Gotha G.I evaluated

With only 15 aircraft built and taking into account the paucity of combat exposure, operational information is scarce. The Gotha G.I arrived at the Front in June 1915; see **Table 1**. *Leutnant* Lühr of *Feld-Flieger Abteilung* 37 recalled that the 'Gotha-Ursinus possessed good load carrying ability, was easy to fly and performed well in turns and maneouvres, but that it was difficult to land with a propensity for turning over.' An experienced airman who was at *FEA* 7 in Cologne on 25 August 1915 wrote that 'the cumbersome Ursinus crates [were] totally



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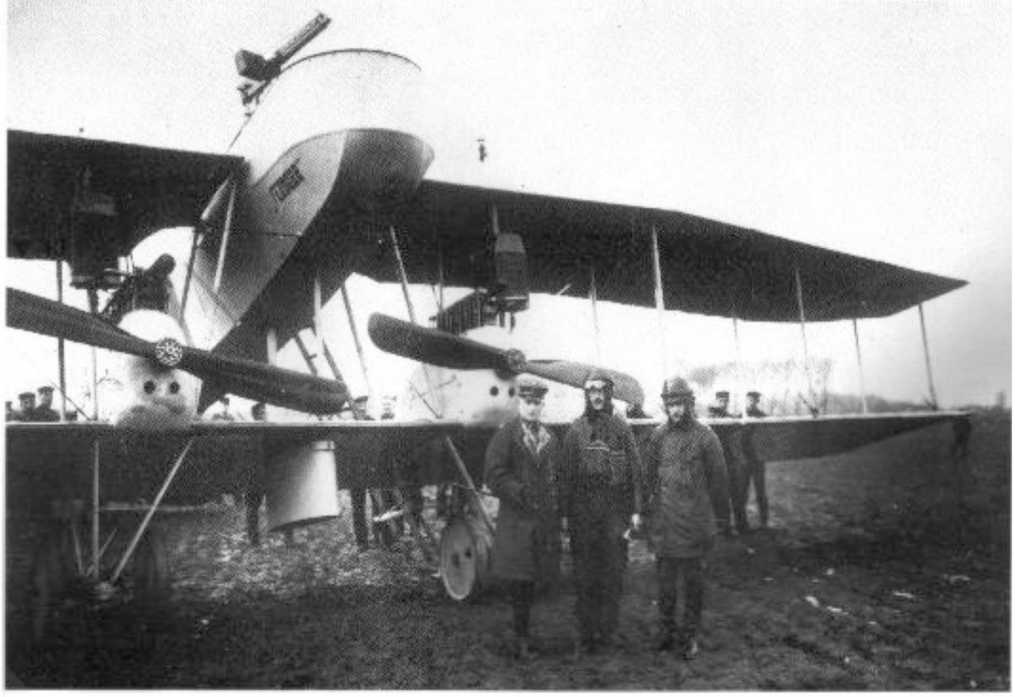


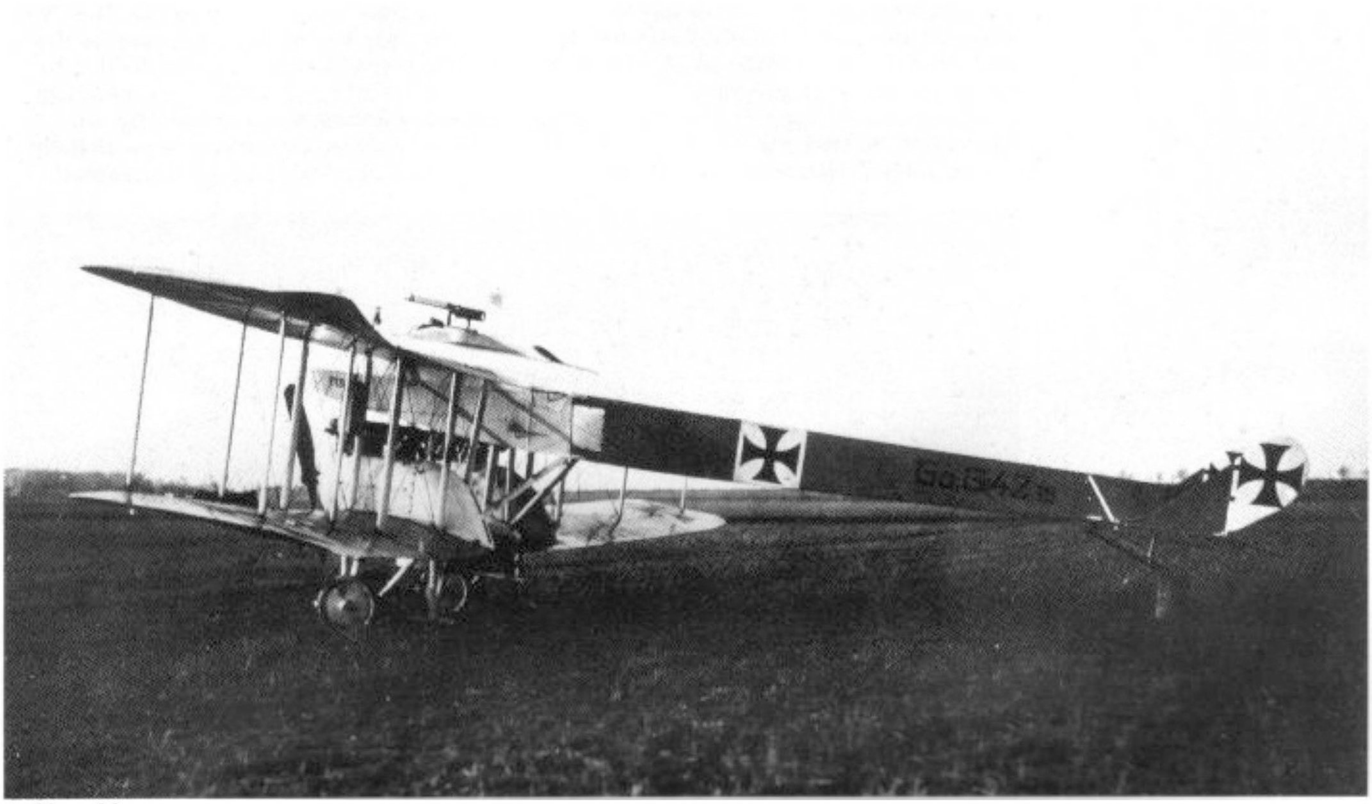
***27.* Gotha G.I 42/15 was delivered to *FEA* 3 in Gotha in Autumn 1915 before being sent to an operational unit on the Eastern front. It was named *Feodora*.**

***28.* Prince Albrecht of Bavaria (middle) was photographed in front of Gotha G.I 42/15.**

useless, both have already crashed.' In contrast, the 'AEG with two 160-hp Mercedes and Albatros [C.I] with machine gun in back' were reported as good. While flying from *Armee Flug Park* Falkenhausen, Gotha G.14/15 crashed on 3 October 1915 killing the pilot, *Leutnant* Rosenfeld, and the gunner *Gefreiter* Monath. Evidently during landing the G.I fuselage had fractured causing the aircraft to flip over. In accordance with the original *Typ III* specifications, the fuselage had been designed to be disassembled into three sections for rail transport.(2) It was found that the fuselage connection fixtures had failed because they were insufficiently robust. Considering the delivery dates of G.9-14/15, one can readily see that the life span of these aircraft was short indeed.

Gotha UWD seaplane

Since the Gotha G.I had been originally conceived as a civil floatplane, Ursinus was in a good position to propose a similar version to the German navy. On 14 April 1915, only two weeks after the first order for G.I *Kampfflugzeuge* was received, the navy ordered one Gotha UWD floatplane *(Ursinus Wasser Doppeldecker)*. It was assigned marine number 120. The navy command had an interest in long-range aircraft for scouting and torpedo carrying purposes which only could be performed by twin-engined



***29.* Gotha G.I 42/15 was armed with two machine guns, one in the nose and one in the central position as seen here.**

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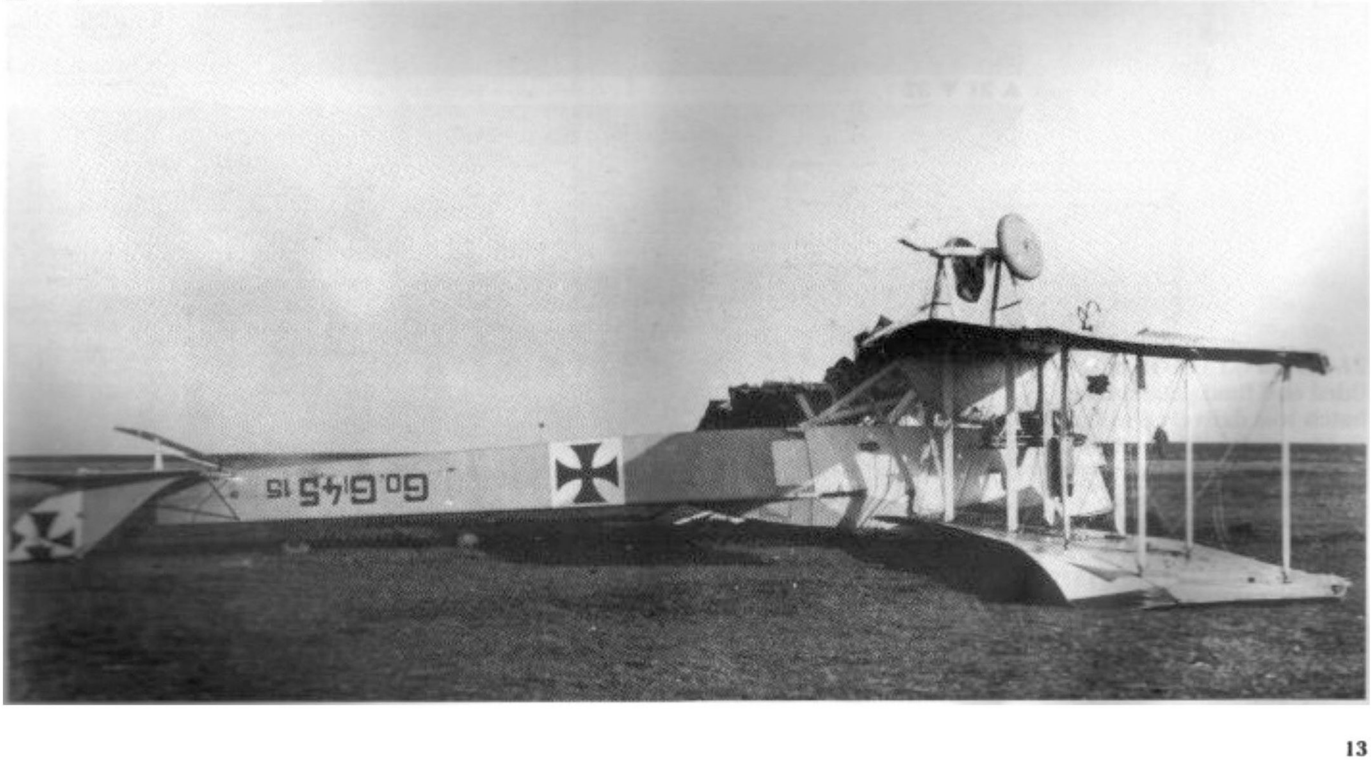
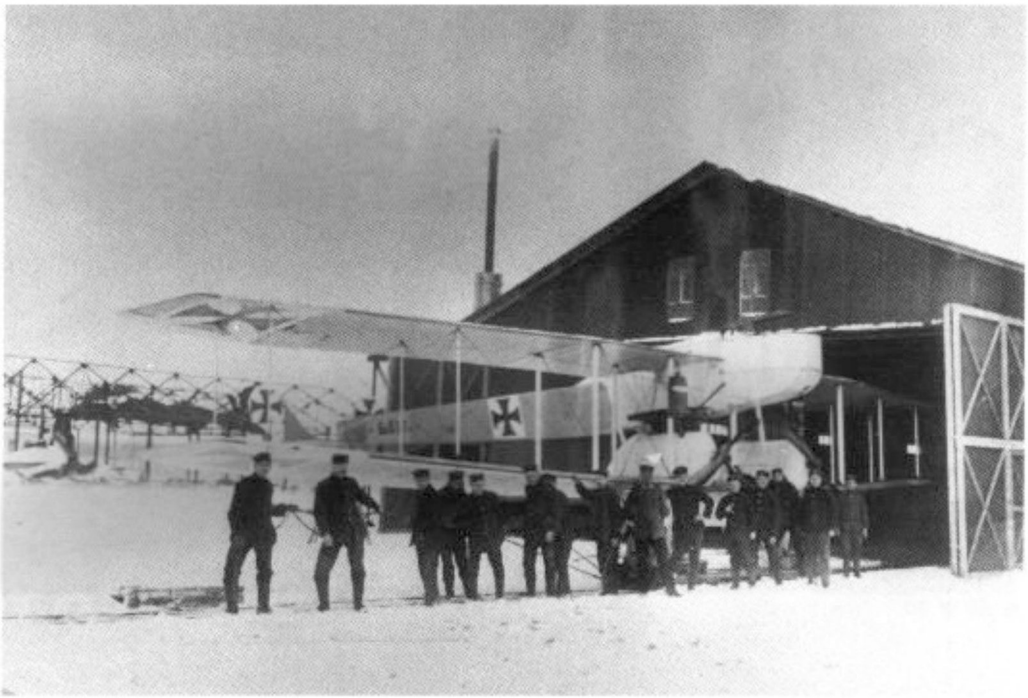


***30.* Gotha G.I 45/15 figured in another noggin buster. The circumstances of this crash are not known. Modellers should take note of the curved washout of the aileron.**

seaplanes. By early 1916, several such prototypes had been delivered to the navy, among them the Gotha UWD.

Whereas the army's first G.I was delivered on 27 July 1915, the navy's Gotha UWD, powered by two 160 hp Mercedes D.III engines, took somewhat longer. The UWD was not shipped to the *Seeflugzeug Versuchs Kommando (SVK* - seaplane testing command) in Warnemünde until 30 December 1915. It was assembled and ready for flight tests on 5 January 1916. These lasted until 6 February when the navy officially accepted the aircraft, almost a year from the placement of order. Besides being more complex in design, the navy asked for modifications in keeping with special seaborne requirements. According to *Flugsport*, the Gotha UWD took off with six men aboard in place of the required ballast during the flight test program. When the naval acceptance engineer saw them appear one by one, he cried out *'Donnerwetter*, that is a veritable Trojan horse,' a name that stuck during its naval service. The UWD was reportedly easy to fly, took off with full load with the merest amount of elevator, came down lightly and landed smoothly. The view from the cockpit over and between the wings was reported as satisfactory.

Rolshoven described a raid on Dover performed by the Gotha UWD in concert with four Friedrichshafen FF 33 float planes but fails to give the date.(10) The Gotha UWD took off at 1300 hours with sufficient fuel for 4.5 hours duration. At 1440 hours, the UWD, the first to arrive over Dover, '. . . bombarded the Langton Fort, a large number of sheds and barracks and in addition the castle and the Shoulder of Mutton battery with 32 bombs.' These were probably 5 kg bombs, giving a total bomb load of 160 kg. The UWD turned away and made an S-course for the middle of the Channel and was the first to land at Zeebrügge at 1630 hours. Although the other aircraft were attacked by 'an enemy Caudron' and several Sopwith Baby seaplanes, the UWD was not intercepted.



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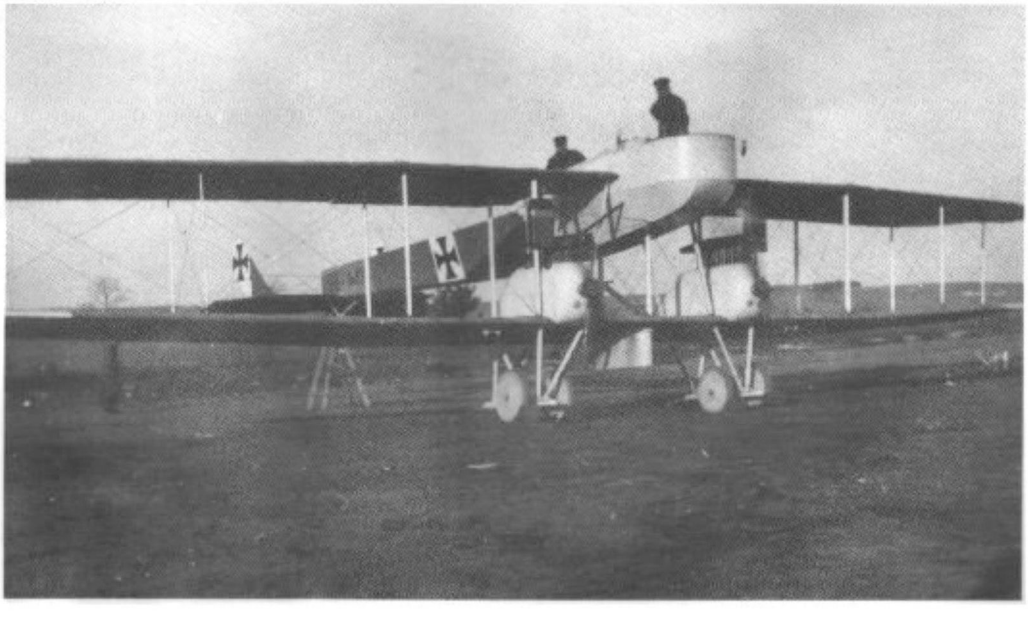
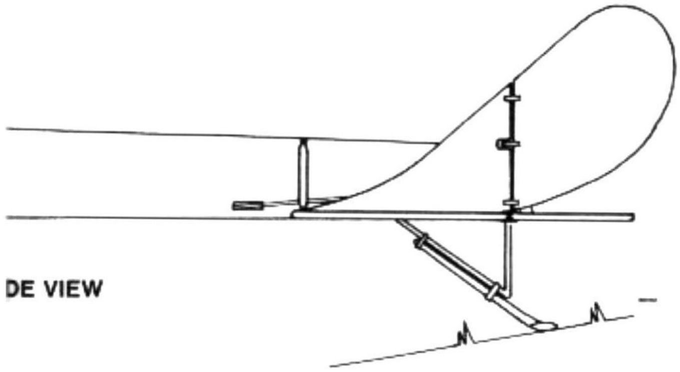
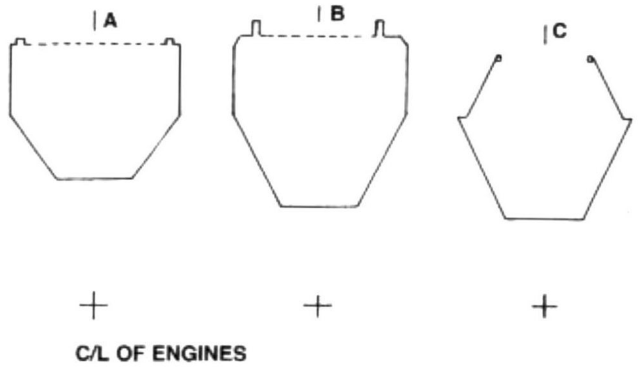


***31.* Gotha G.I 101/15 of the third and final production batch was delivered to the *Prüfanstalt und Werft* in Döberitz on 8 February 1916. It may have been employed in weapons trials.**

***32.* This Gotha G.I (101/15?) of the final production batch was photographed on the Karolin airfield near Grodno.**

DE VIEW





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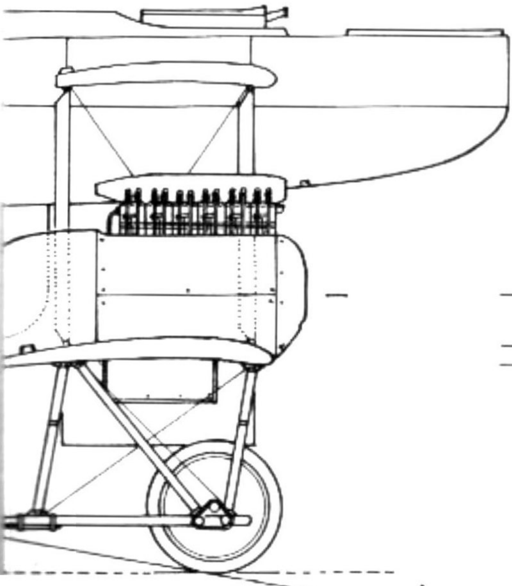
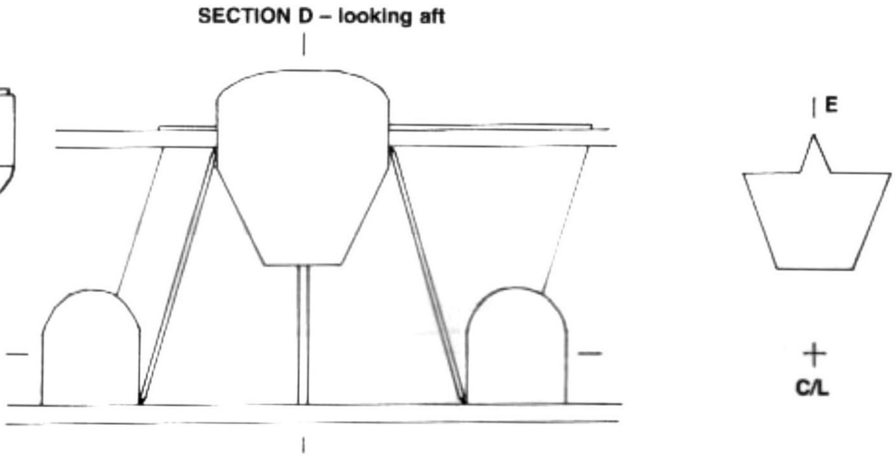
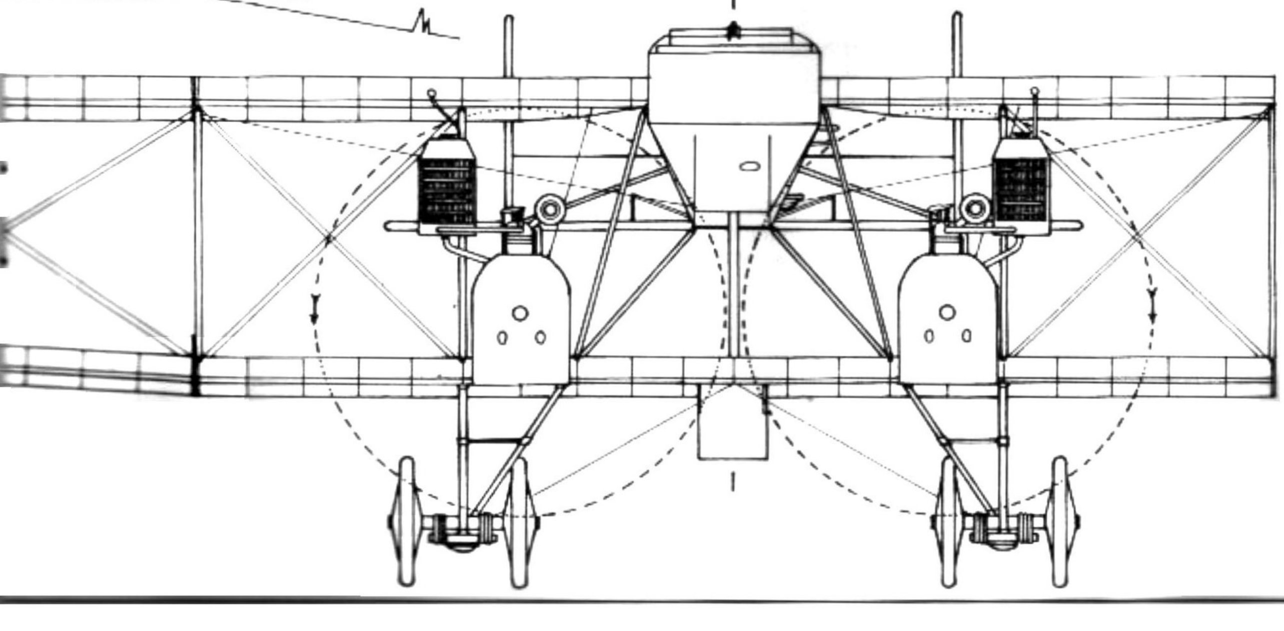
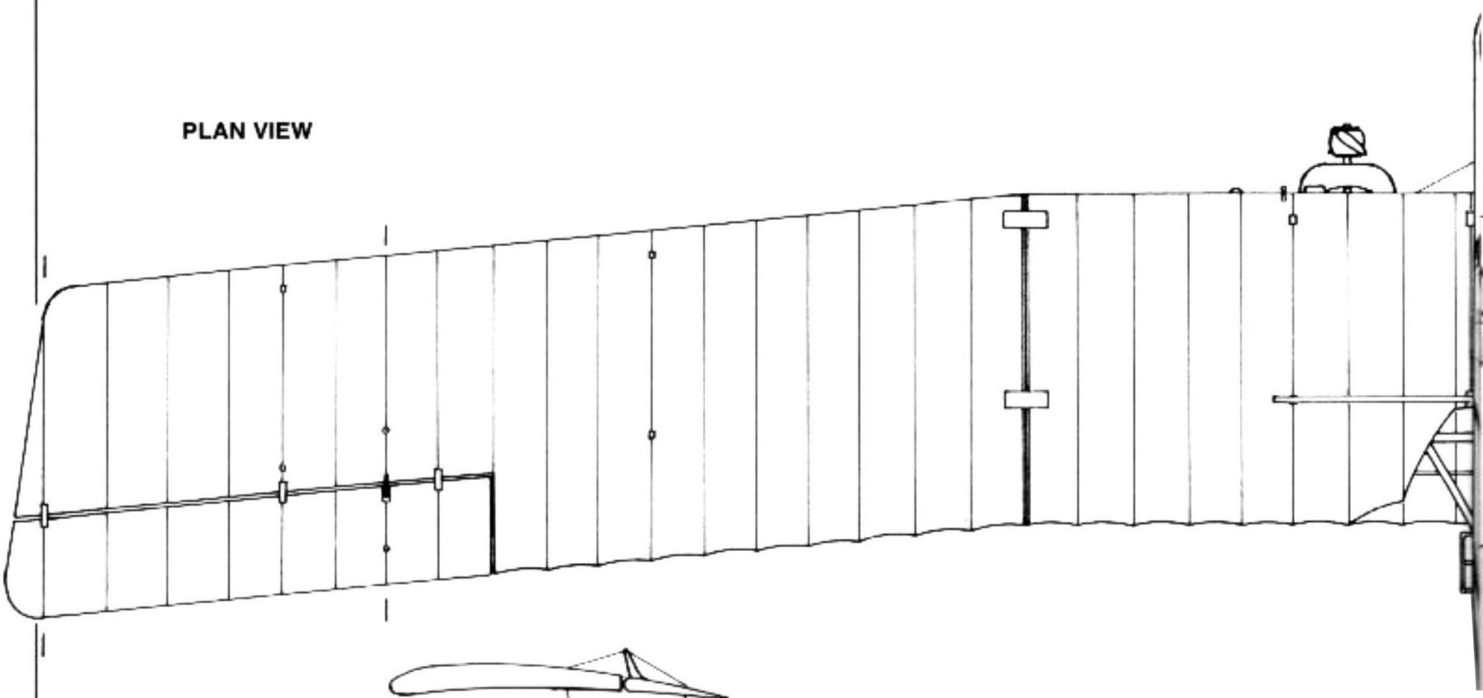


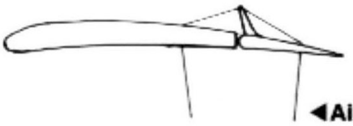

SECTION D – looking aft

FUSELAGE SECTIONS

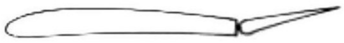


PLAN VIEW





◀Aileron control cables



Note aileron washout

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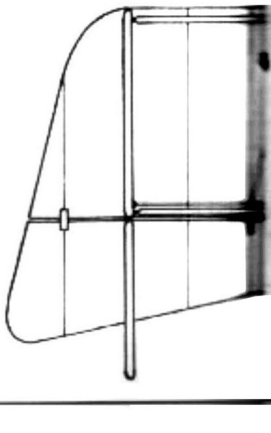
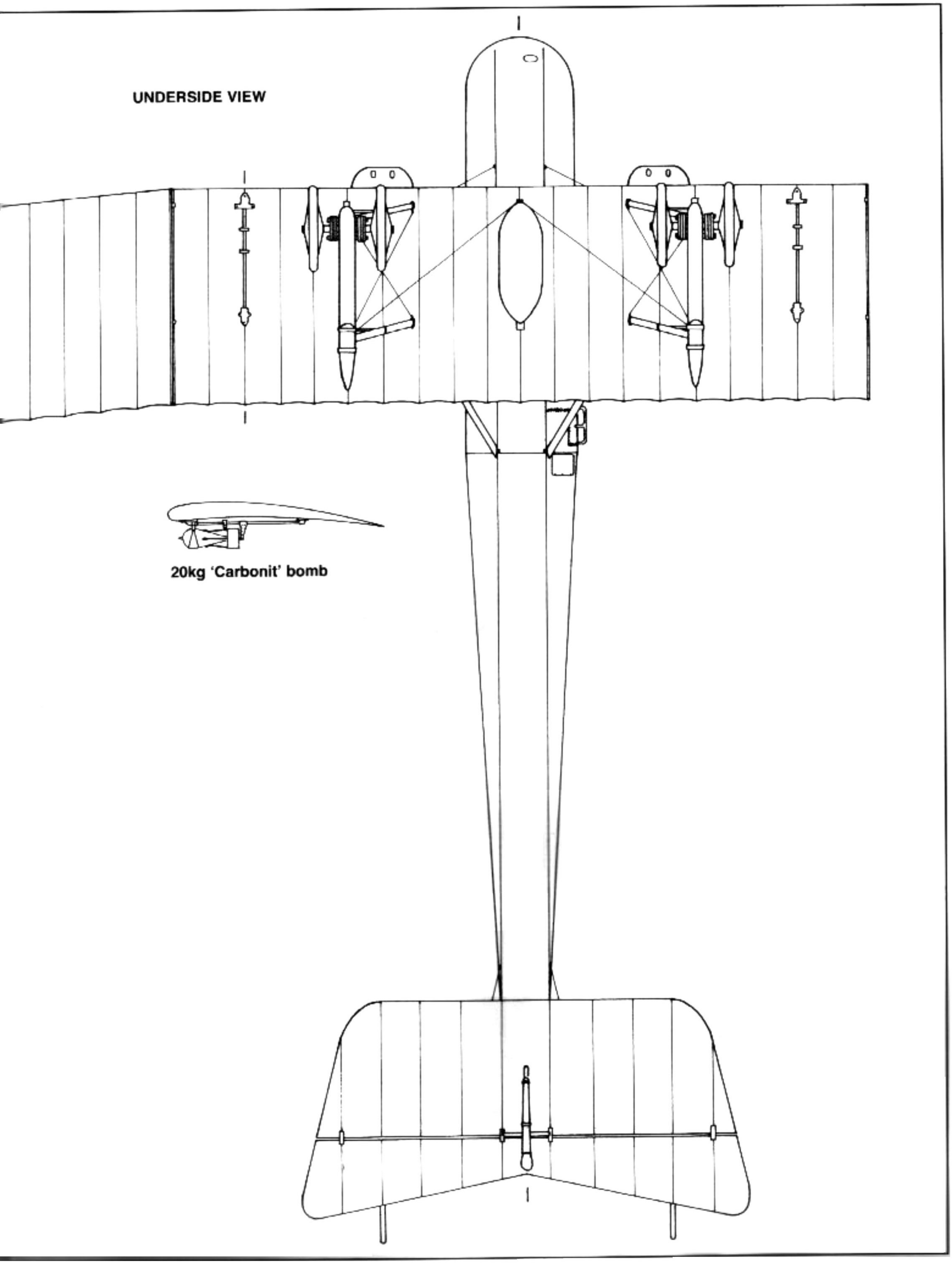
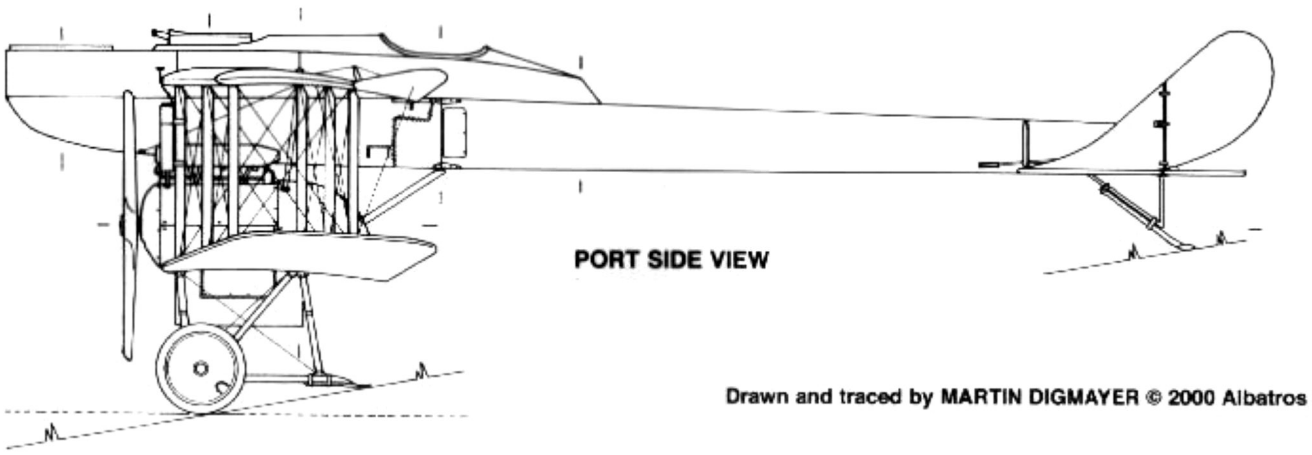


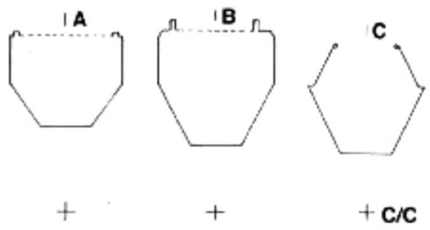


UNDERSIDE VIEW

20kg 'Carbonit' bomb



PORT SIDE VIEW



FUSELAGE SECTIONS

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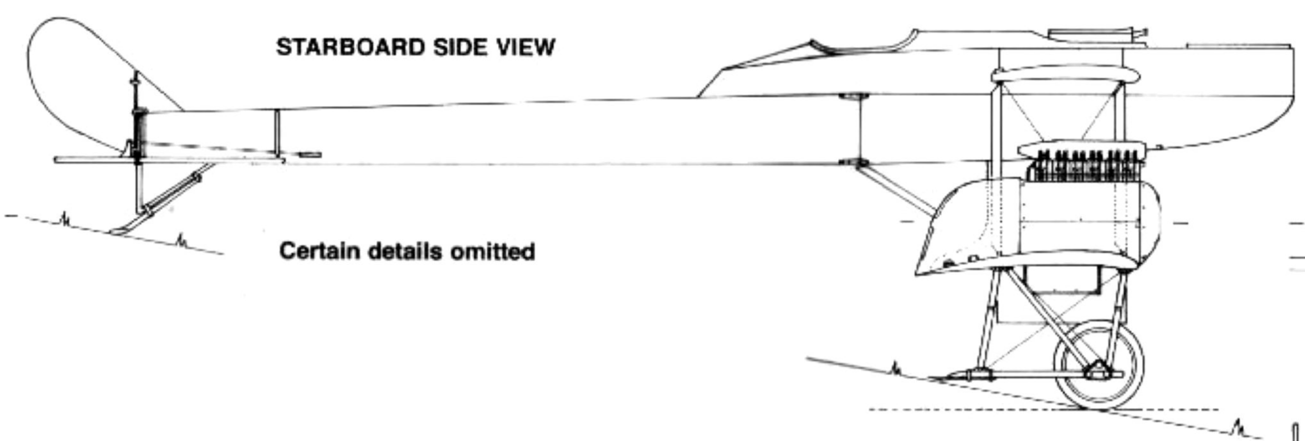
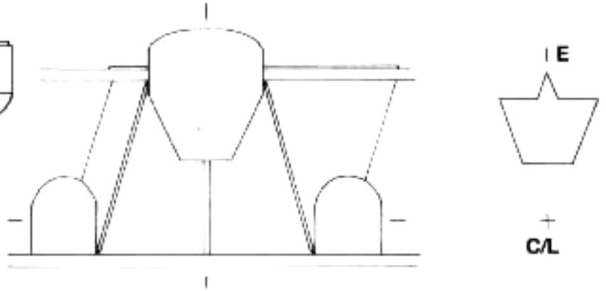
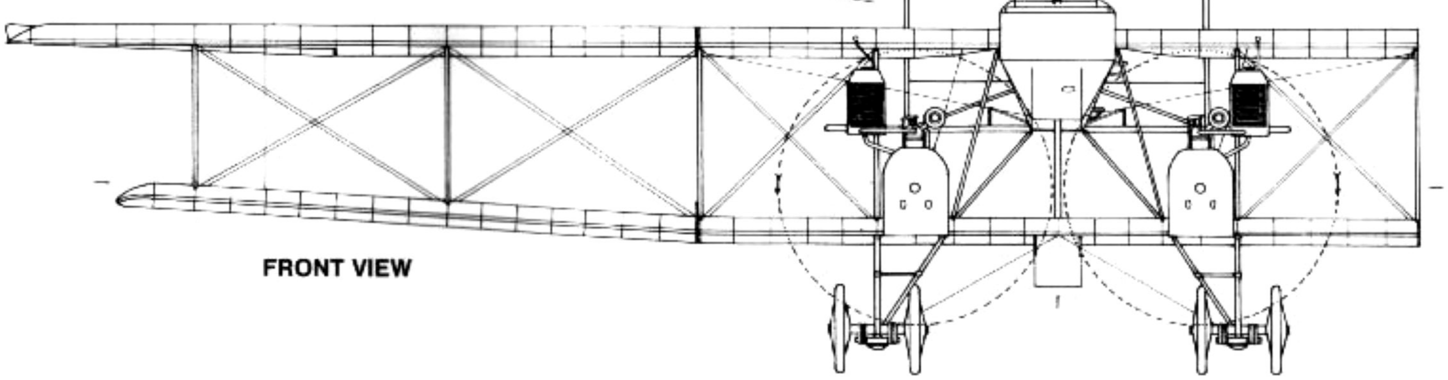


STARBOARD SIDE VIEW

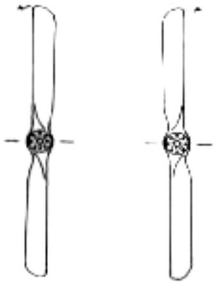
Certain details omitted



FUSELAGE SECTIONS

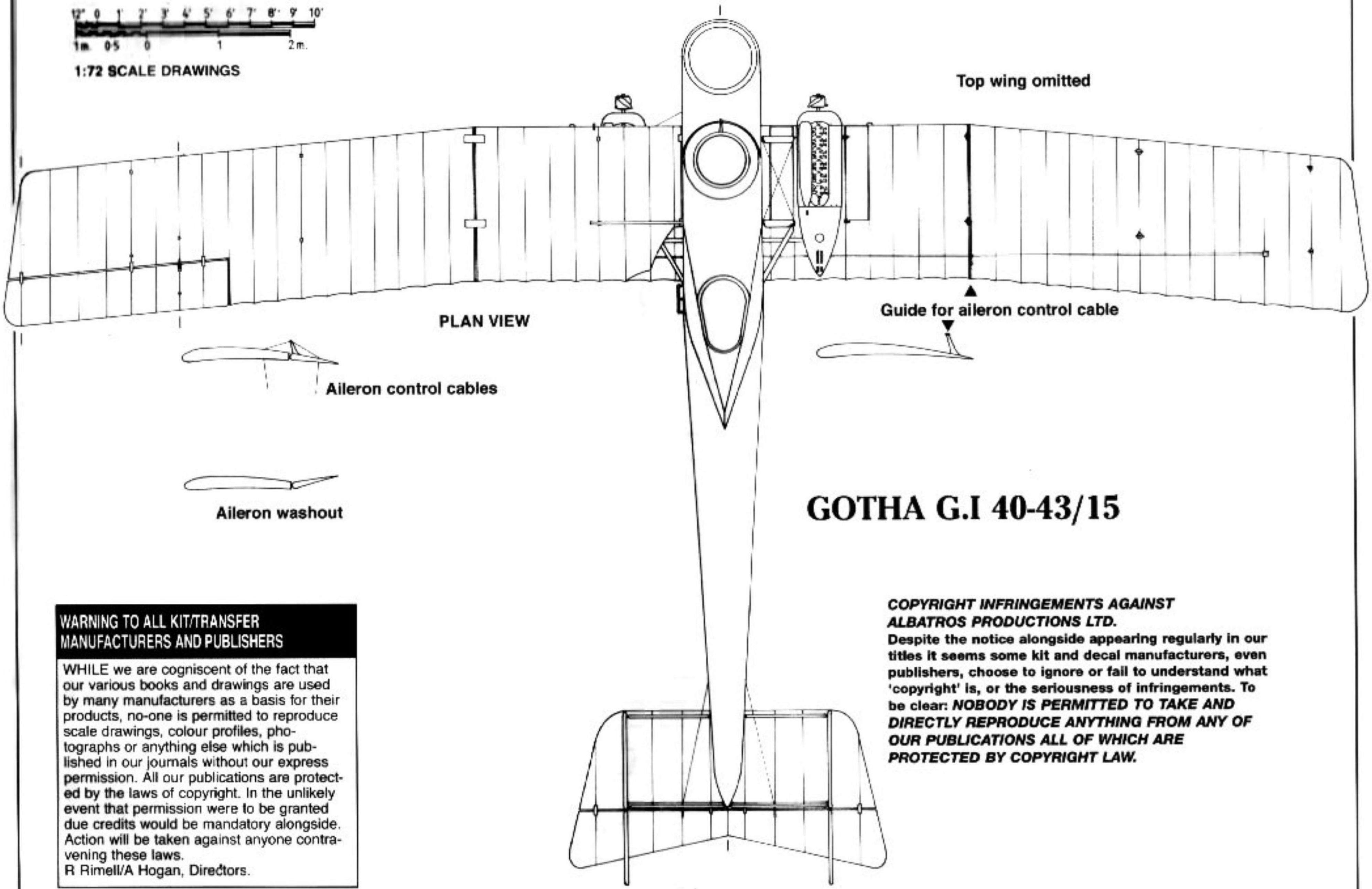


FRONT VIEW



Garuda airscrews

GOTHA G.I 40-43/15



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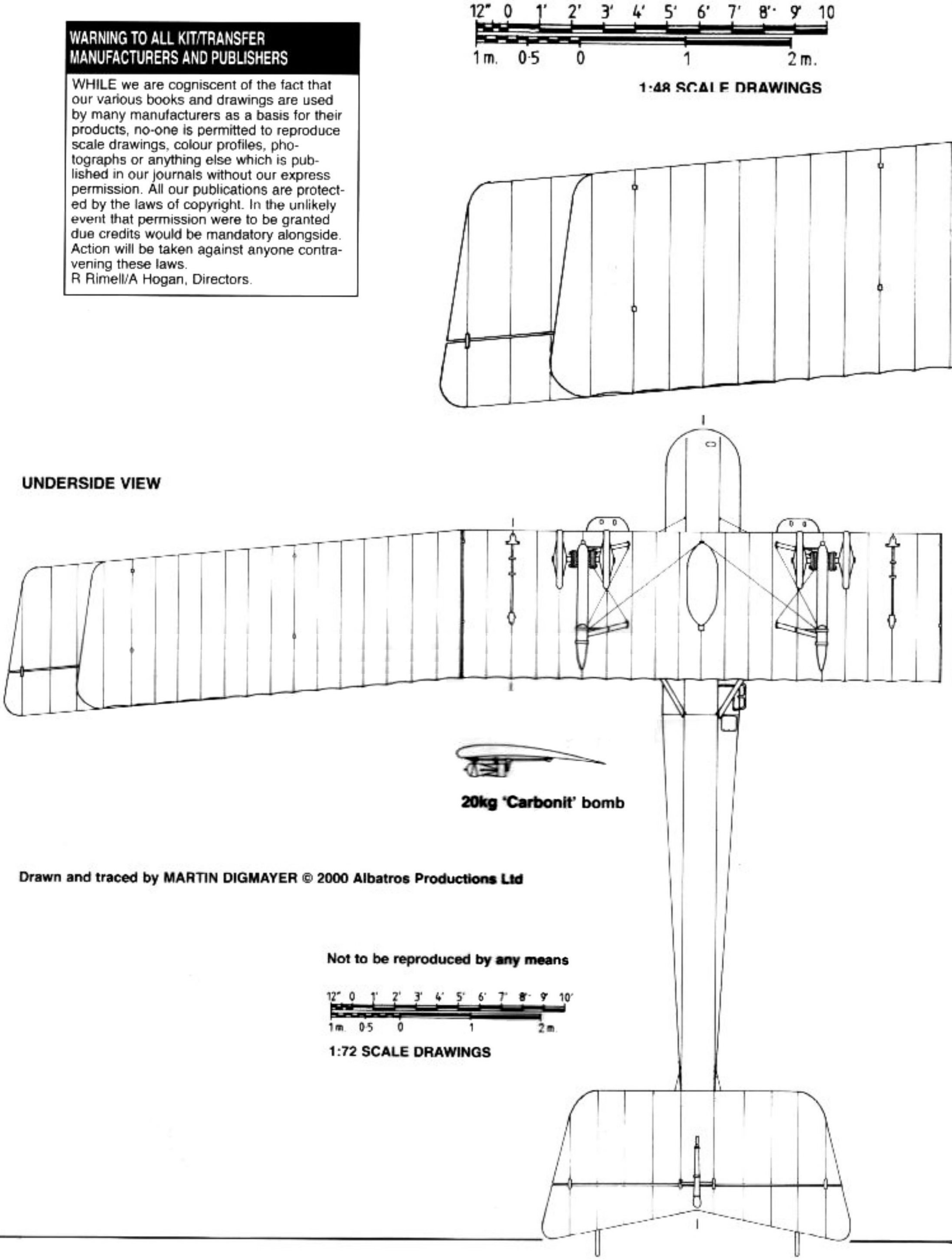

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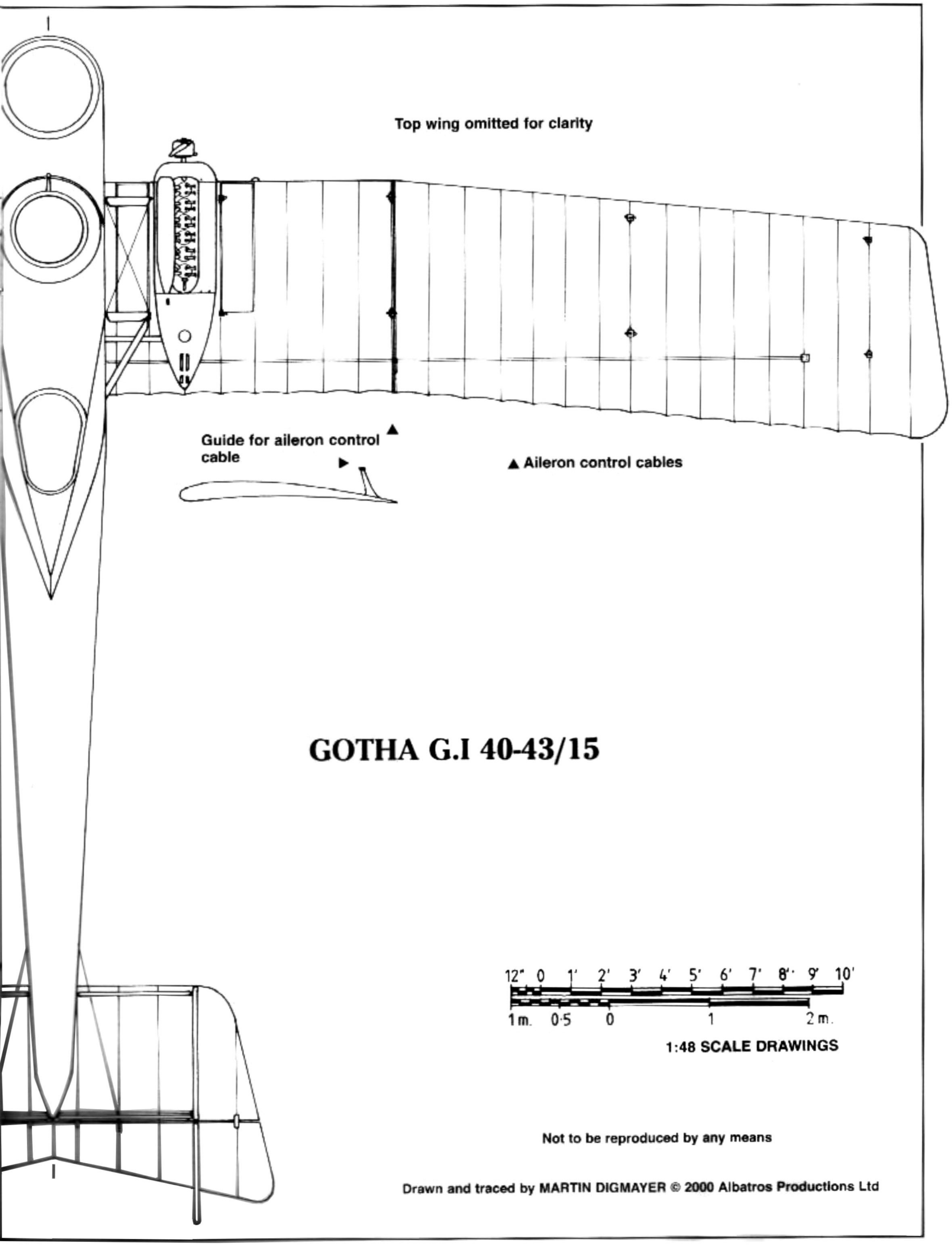

GOTHA G.I 40-43/15

1:48 SCALE DRAWINGS

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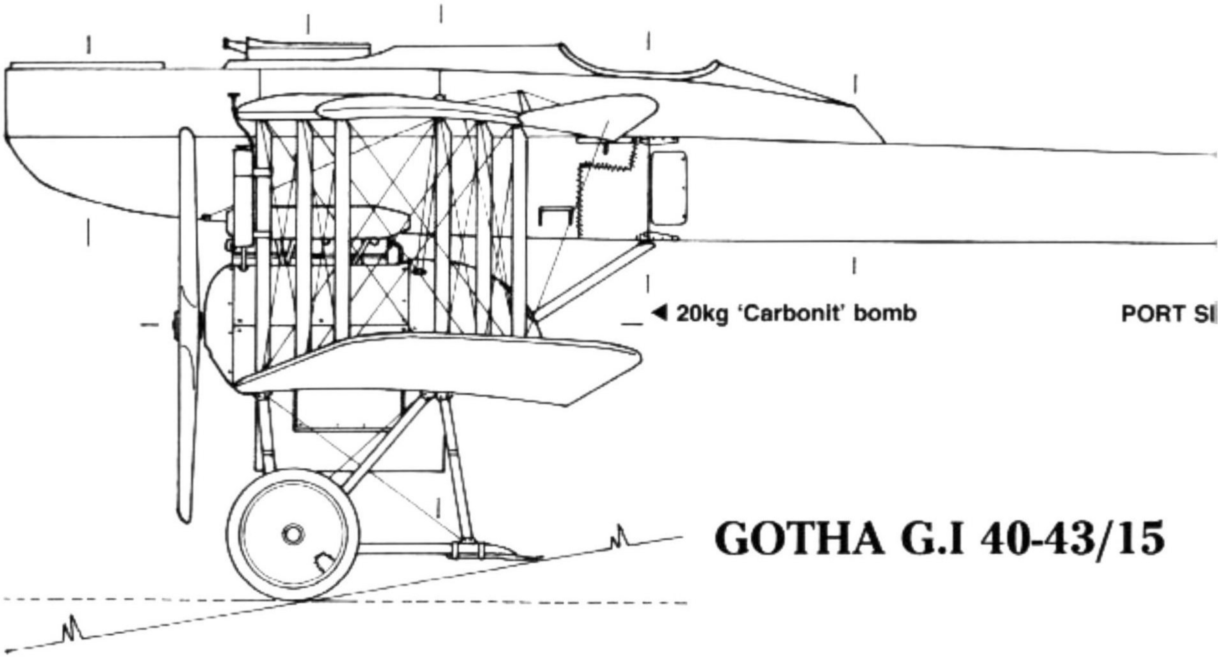
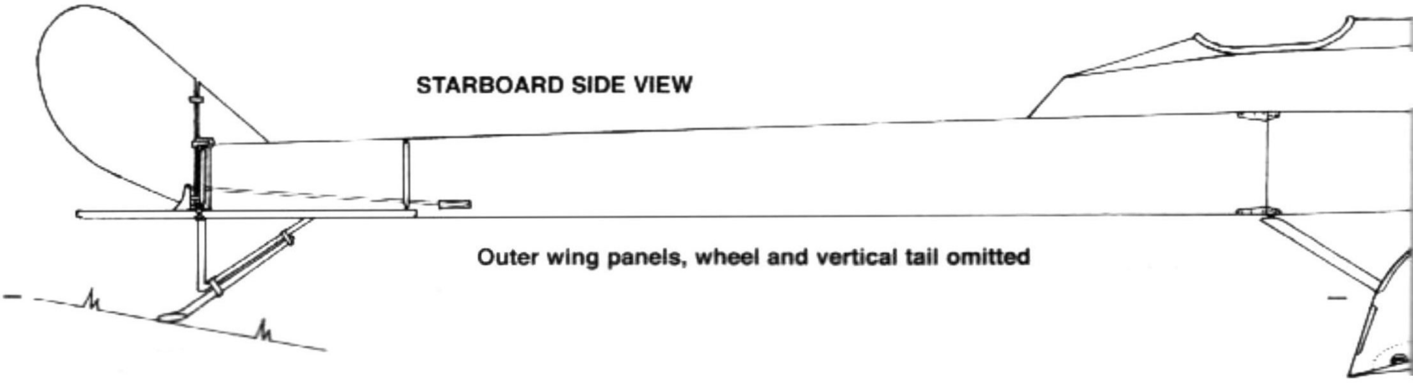
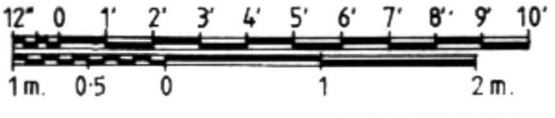
GOTHA G.I 40-43/15

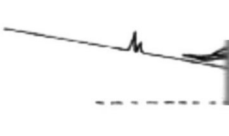


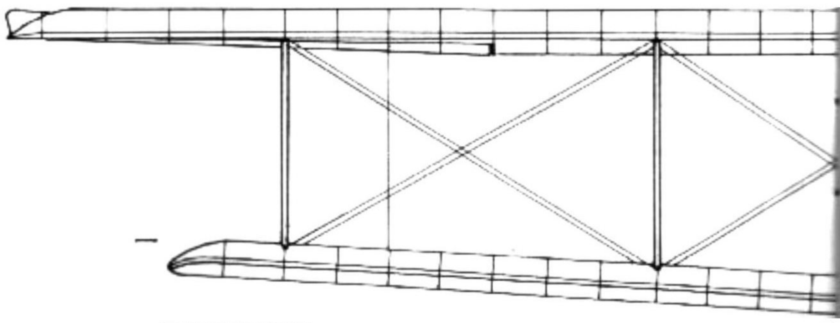


Outer wing panels, wheel and vertical tail omitted

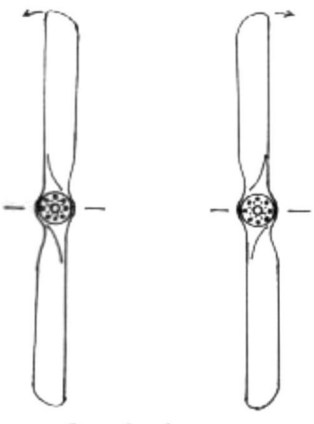


1:48 SCALE DRAWINGS





FRONT VIEW



Garuda airscrews

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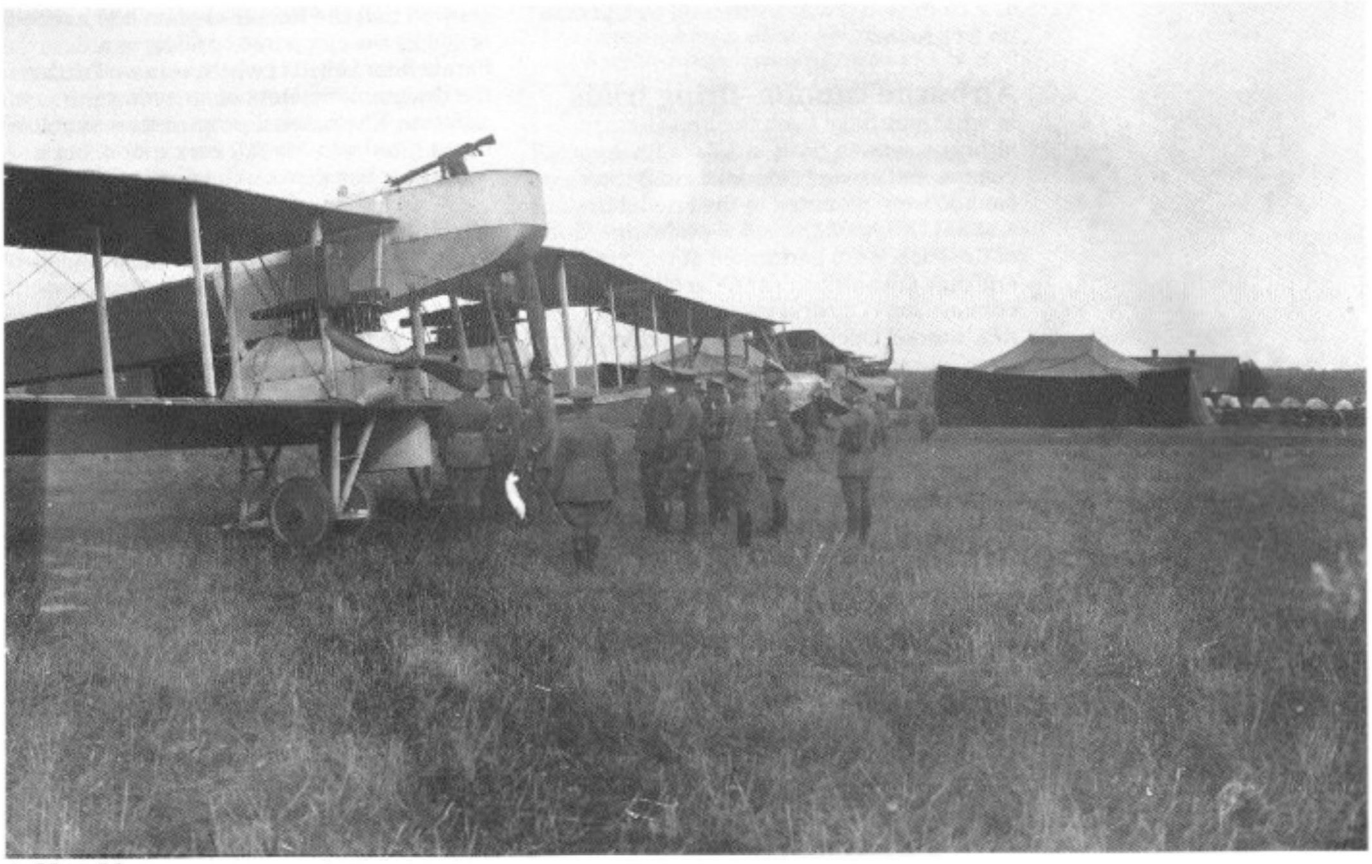
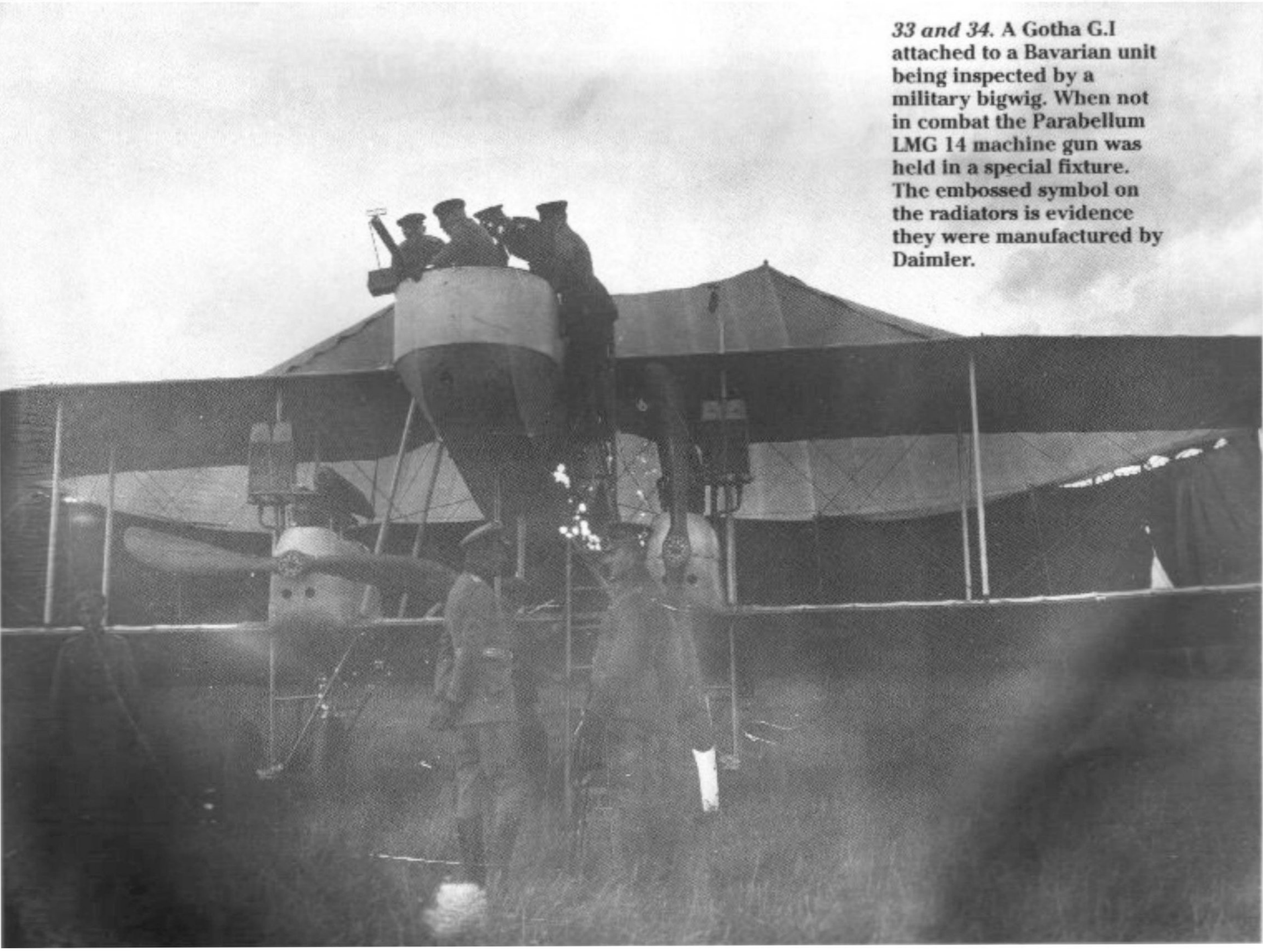


▲ 33 ▼ 34



33 and 34. **A Gotha G.I attached to a Bavarian unit being inspected by a military bigwig. When not in combat the Parabellum LMG 14 machine gun was held in a special fixture. The embossed symbol on the radiators is evidence they were manufactured by Daimler.**

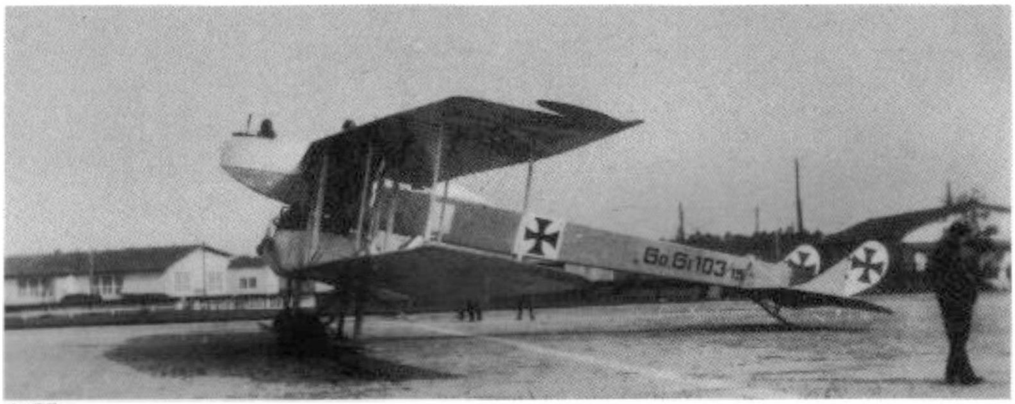
The Gotha UWD was written off by the navy on 2 October 1916.

Airborne cannon–firing trials

In what may have been the first German airborne cannon trials, a 3.7 cm Rheinmetall cannon and an early-model 2 cm Becker cannon were mounted in the Friedel-Ursinus and a G.I *Kampfflugzeug* for evaluation. Some of the trials were performed at the *Artillerie Prüfungs Kommission (APK* - artillery test commission) Ohrdruf proving grounds. The *APK*'s recoil calculations were verified with complete satisfaction. At a later date, measurements taken by the *Kommando Waffen* (weapons command) of *Idflieg* showed that the Becker cannon had a recoil of 440 kg (as compared to 60 kg of a Parabellum LMG 14) which was well within the design parameters of an average airframe. Rheinmetall proposed an armoured turret fitted with the 3.7 cm cannon, but it was never installed on the Gotha G.I.

Conclusion

The Friedel-Ursinus *Kampfflugzeug* design represented but one of the many possible solutions to the *Typ III Kampfflugzeug* specification. The wide field of fire and engine-out capability, lauded by Dr. Heller, had been cleverly solved by Ursinus but at the expense of some glaring disadvantages.



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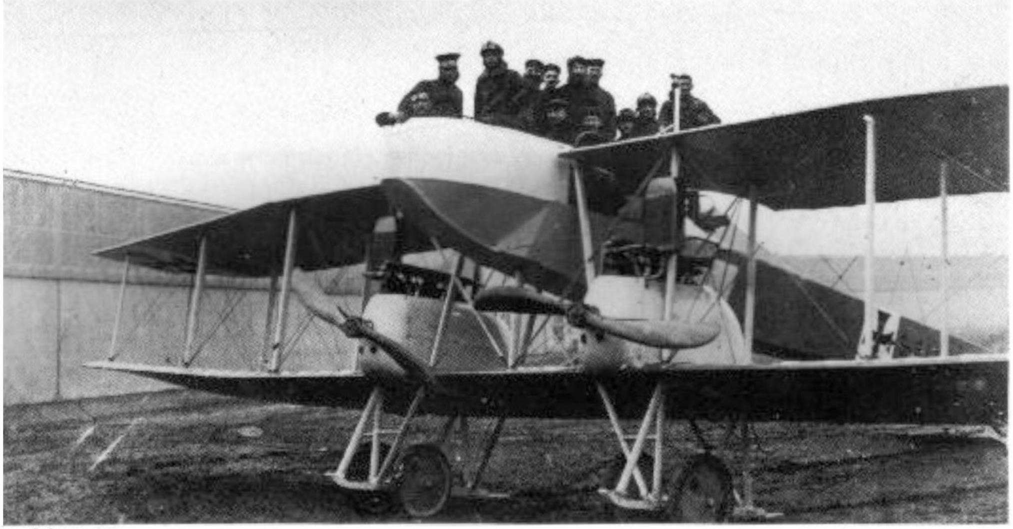


▲ 36 ▼ 37

35. Gotha G.I 103/15 of the final production batch was delivered to *Prüfanstalt und Werft* in Döberitz on 28 February 1916. The photograph is unique because it shows the only G.I known to have been fitted with balanced ailerons. The photograph was probably taken at Adlershof.

36. *Aaaall aboard!* Twelve persons gathered for a photo-op on a Gotha G.I. Unlike other Gotha G.I aircraft, the undercarriage is fitted with small turn-over skids but they fail to inspire confidence.

37. With airscrew spinning, a Gotha G.I awaits clearance for take-off.

However, the real problem lay in the inexorable evolution of air combat tactics, particularly on the Western front, where lumbering twin-engined *Kampfflugzeuge* quickly revealed the 'battleplane' hypothesis as false. Battleplanes did not confront each other, as postulated, like boxers going for a knockout punch. German (and French) battleplanes were simply too slow and too unwieldy to chase or catch an enemy aircraft that was swifter and more manoeuvrable. The faster enemy had the option to attack or break off combat at his own choosing. It was much to his advantage and gave him the upper hand. With its battleplane role defunct, the Gotha G.I was crudely modified to carry an increased bomb load, but like most stop-gap measures, it was of little value even on the Eastern front where enemy activity was light.

From a design standpoint, the raised fuselage layout represented a dead-end. That the layout was used in the Thirties by the British and French air forces is no recommendation.(12) Perhaps the nicest thing one can say about the Friedel-Ursinus *Kampfflugzeug* is that for modellers it makes a unique project that should bring many hours of challenge and enjoyment.

The views stated and any errors are mine alone. All photographs are from the my collection. I wish to refrain from expressing any opinion regarding aircraft colours or camouflage since this is the responsibility of editor Ray Rimell. ❑

Footnotes:

1) Die Militärluftfahrt bis zum Beginn des Weltkrieges, Technischer Band, Mittler, Frankfurt, 1966, S.95.

2) The German army considered aircraft as part of the military train accompanying the armies by ground or rail transportation. Consequently, speed of assembly was an essential criteria.

3) Twin-engined *Kampfflugzeuge* were built by AEG, Hansa-Brandenburg, Fokker, Friedrichshafen, Gotha, LVG, Oertz, Roland, Rumpler, Schütte-Lanz and Union.

4) Flugsport also promoted motorless flight and model making, the only pre-war publication to do so, but curiously, *Flugsport* did not climb on the lighter-than-air bandwagon. Continuing his role after the war, Ursinus was instrumental in supporting gliding competitions on the Rhön. As the beloved *Rhönvater* in his battered fedora, he kept the aviation aspirations of Germans alive by his enthusiastic and widespread coverage.

5) For a description and three-view drawing of the Friedel-Ursinus type FU see *Flugsport*, Vol.XXII, No.20, 1930, p.336. The patent DRP No.307382 can be found in *Flugsport*, Vol.X, No.24, 1918, p.605.

6) Richard Dietrich, *Im Flug über ein halbes Jahrhundert*, Bertelsmann, Gütersloh, 1942, p.82.

7) Marton Szigeti, Pionier-Leistung, Deutschlands erstes zweimotoriges Kampfflugzeug, *Flug Revue*, December 1998, p.76.

8) AEG-Flugzeugfabrik Hennigsdorf 1910-1919, p.21.

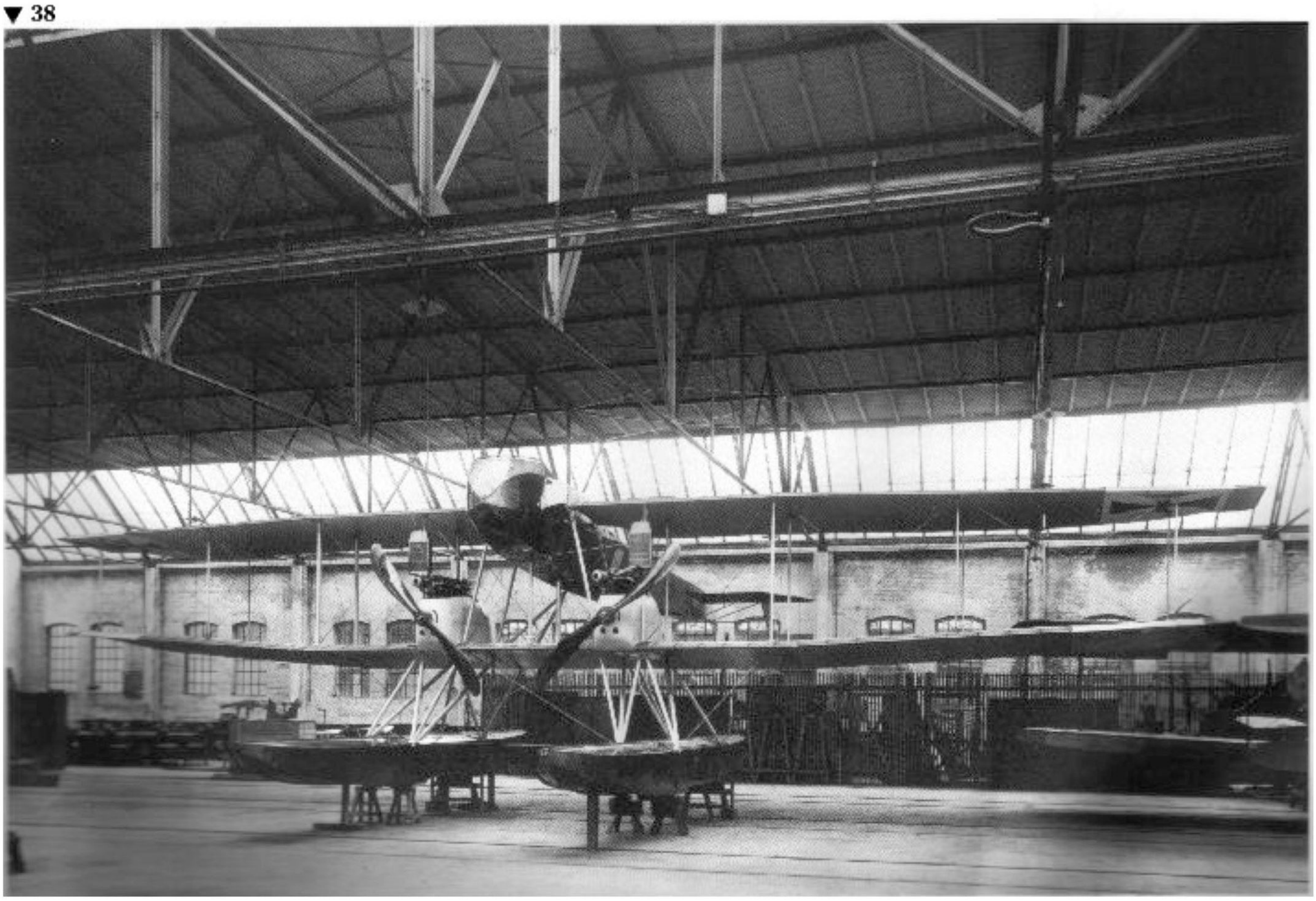
9) With the transfer of *FEA* 3 to Gotha, Darmstadt became the home of *FEA* 9 on 16 March 1915.

10) The Gotha *Kommissionsbuch* shows that aircraft G.100-105/15 were ordered on 9 August 1915. I can not explain the discrepancy between the *Idflieg* and Gotha order dates, but it may be that *Idflieg* issued a letter of intent in August and called down the last six aircraft in October.

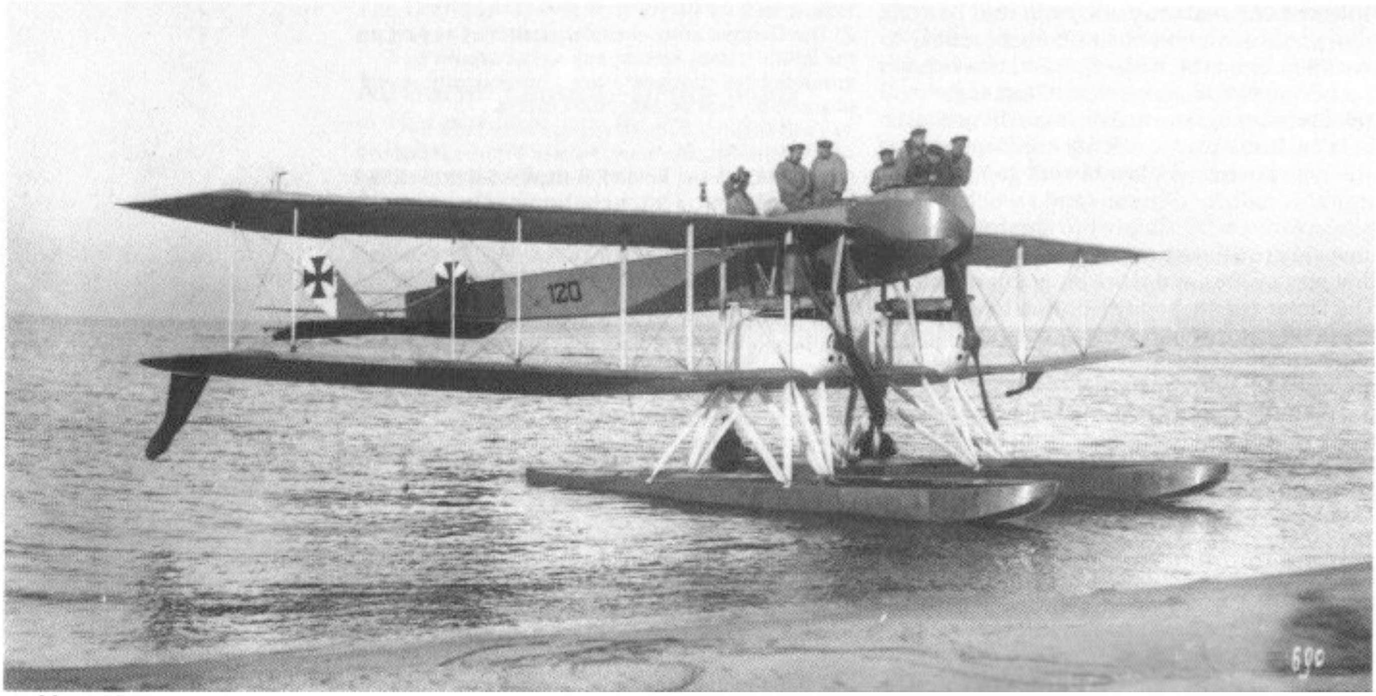
11) Hans Rolshoven, *Seeflieger in Flandern*, Mittler, Berlin, 1937, p.78.

12) Flugsport, Vol.XXII, No.20, 1930, p.336. In the article, it was pointed out that Ursinus design patent was the forerunner of the British Handley-Page Heyford, and the French Latécoère 6 and Hanriot HD 25 bombers.

▼ 38



***38.* Resplendent in the highly-varnished finish, the completed Gotha UWD seaplane was photographed at the factory prior to shipment to Warnemünde test centre on 30 December 1915.**



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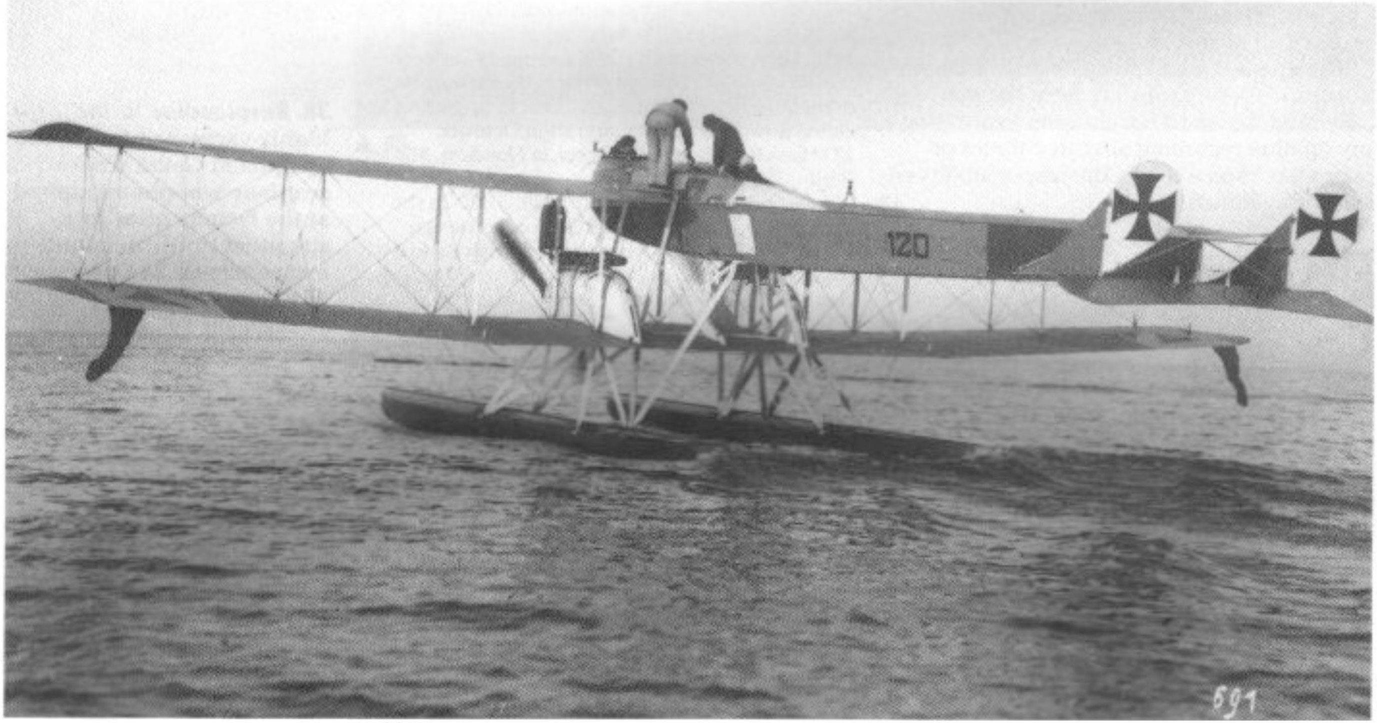
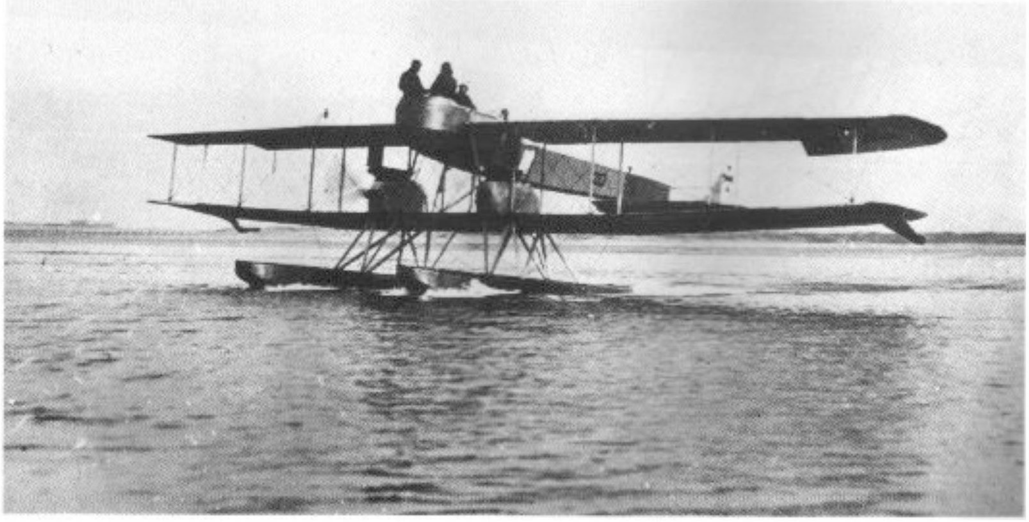
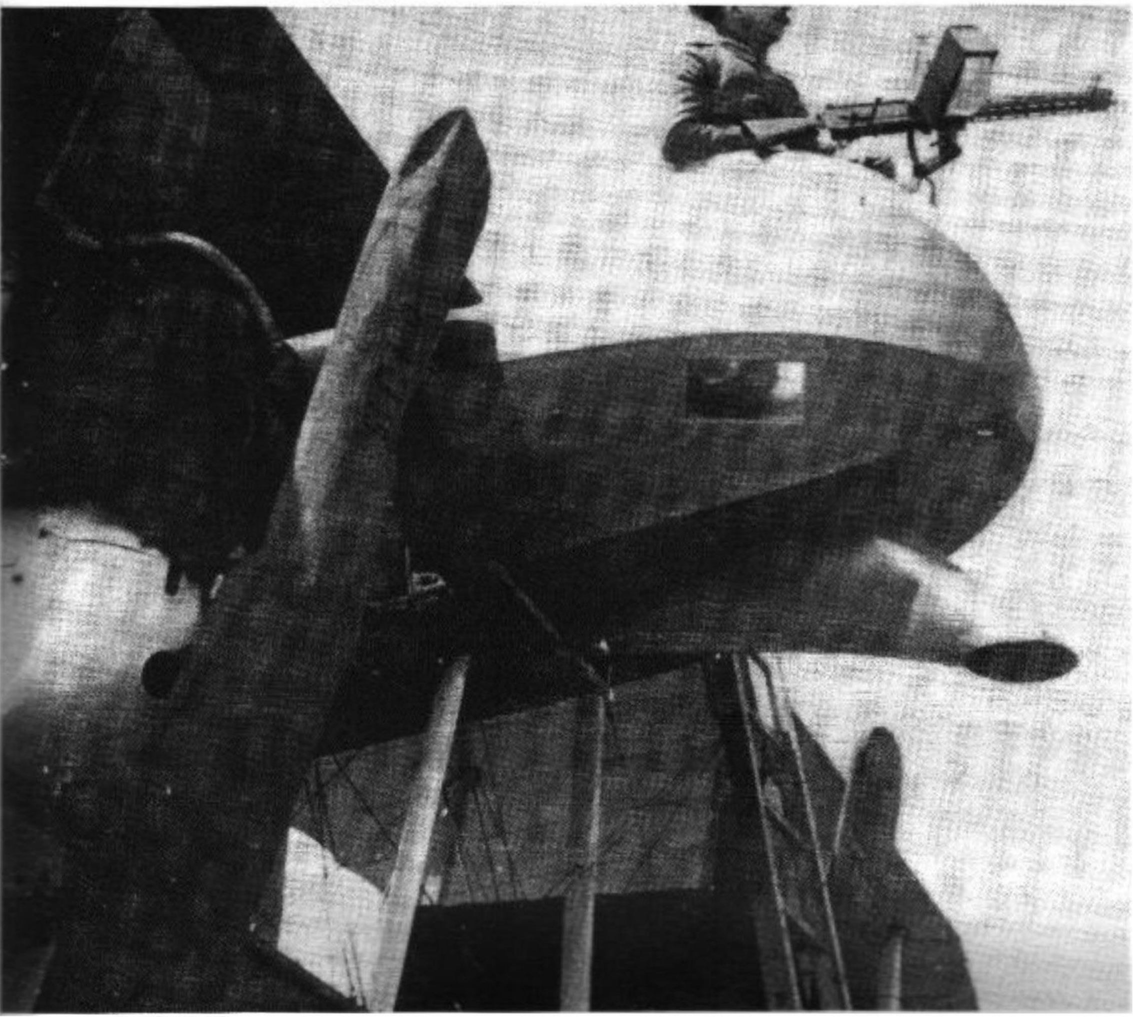


▼ 41

***39, 40 and 41*. What was it about the Gotha-Ursinus aircraft that attracted crowds? The 'Trojan Horse' on floats was photographed at Warnemünde during the sea trials in February 1916.**

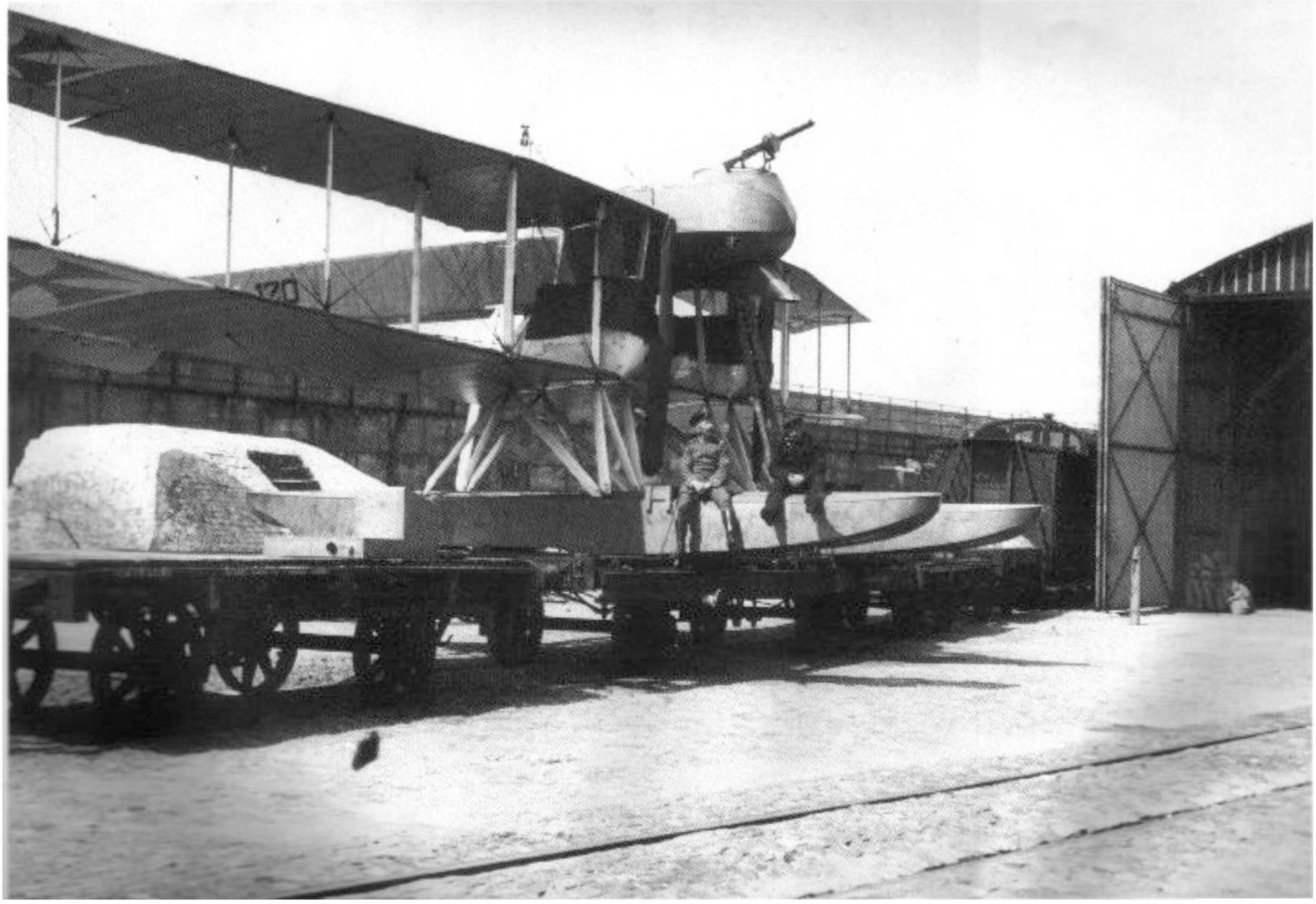




42. **In the turret of the Gotha UWD (*m/n* 120), the designer Oskar Ursinus surveys the scene at the Zeebrügge seaplane station. The rather wicked-looking proboscis is a rudimentary and surely ineffective bomb-launching tube. The markings on the airscrew covers show that they have been taken from the Gotha G.I 45/15 which crashed on 4 February 1916.**

43. **Gotha UWD on the mole at Zeebrügge. The designer Oskar Ursinus can be seen sitting on the float.**

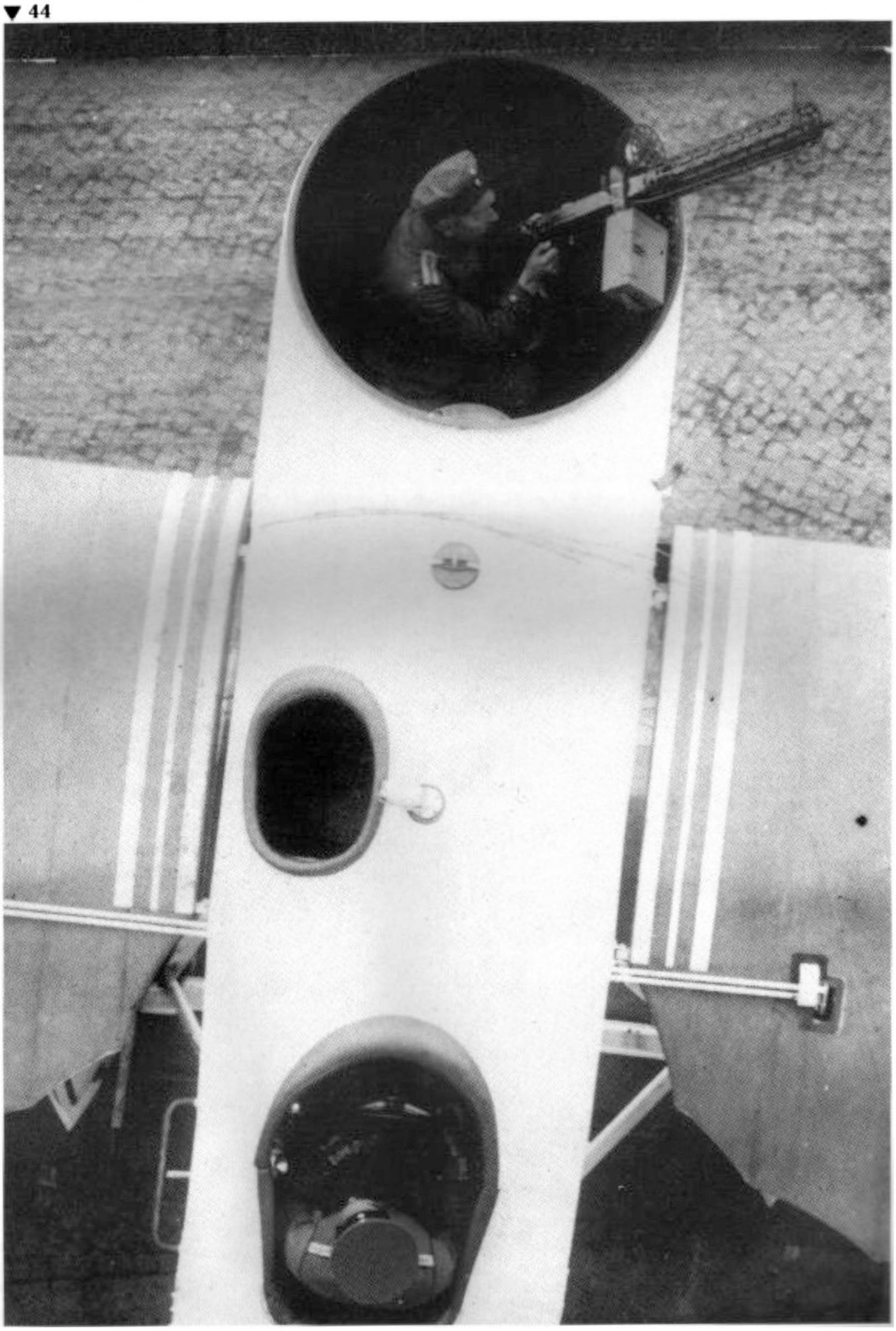
▲ 42 ▼ 43

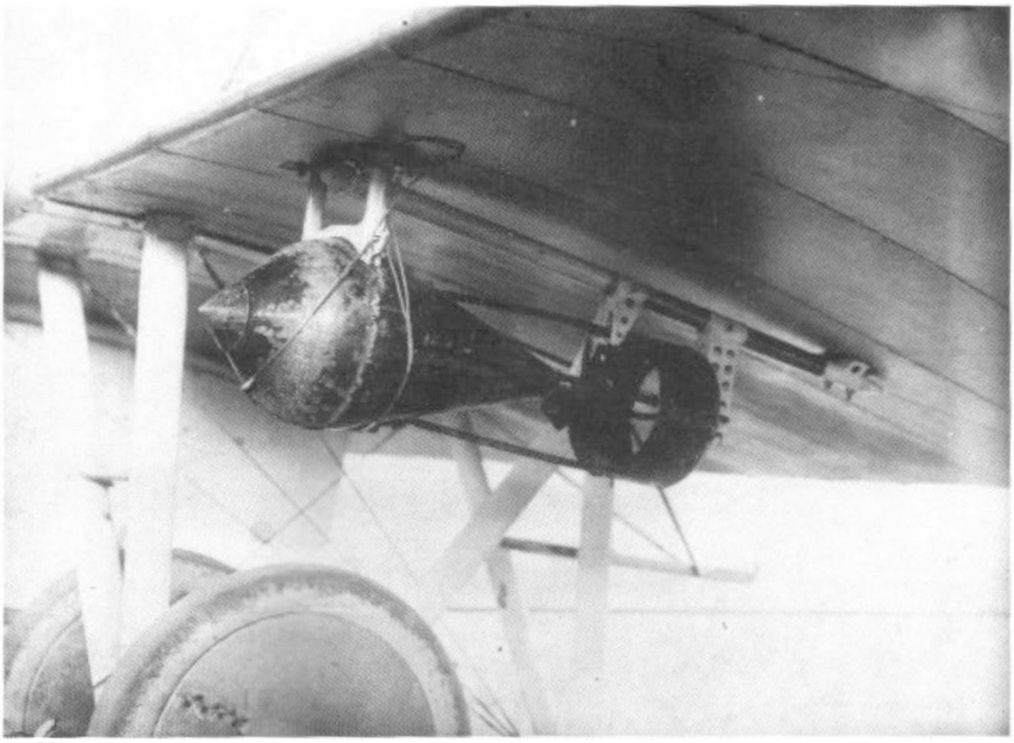


GOTHA G.I IN DETAIL

44. **Ursinus demonstrates the expansive nose turret by aiming a Spandau LMG 08 machine gun. It is believed that the middle cockpit was off-center to allow access past the fuel tank. In the Friedel-Ursinus B.1092/14, the middle cockpit was placed on the centre line. Both cockpits are generously padded.**

▼ 44





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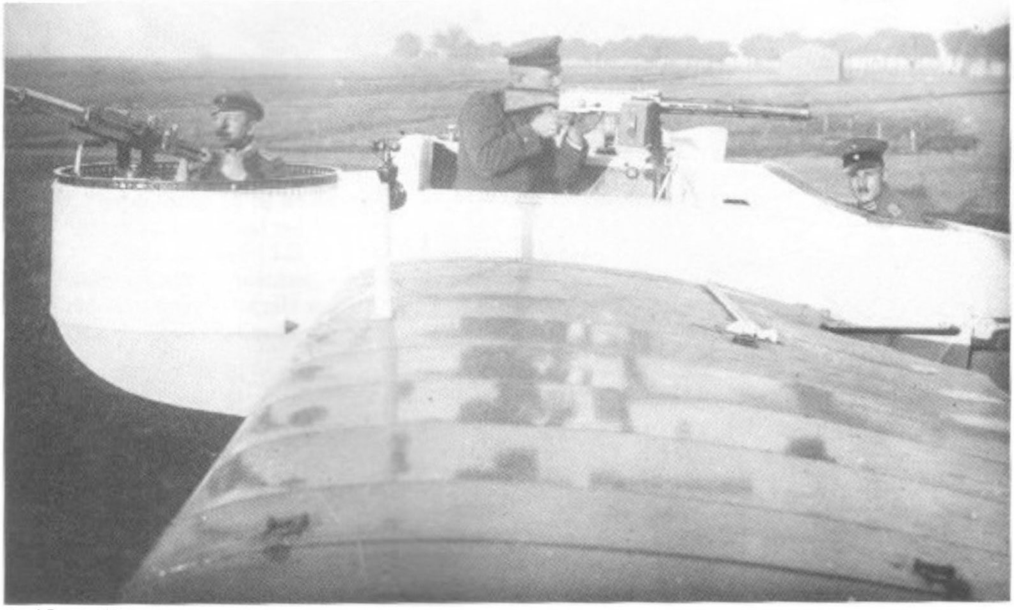

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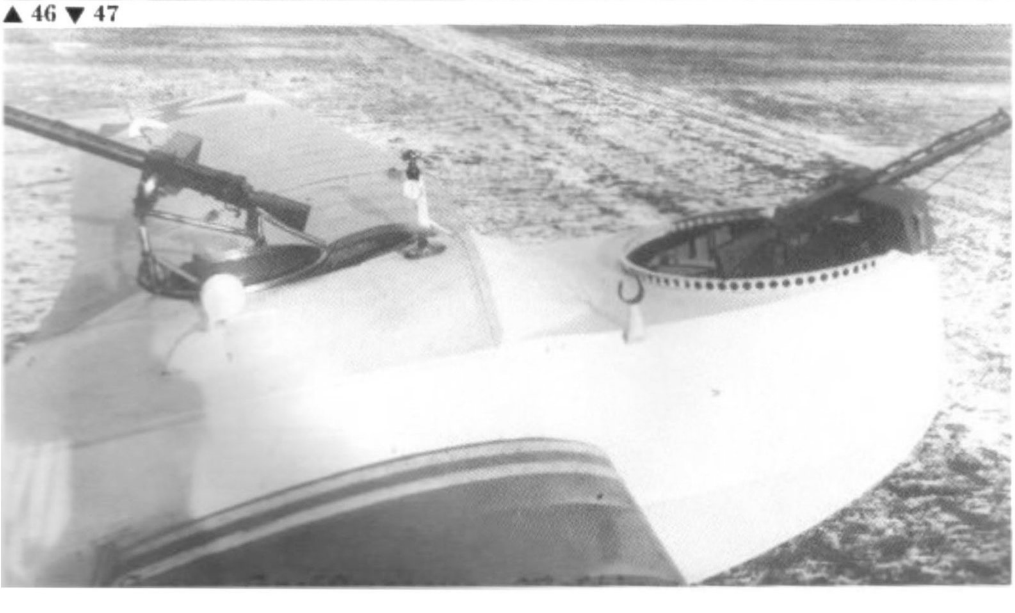


45. Another Gotha G.I variation was to mount the bombs under each wing in addition to the central bomb container. Here a 50 kg Carbonit bomb is suspended on a bomb rack. In the background is the step fixture for climbing into the aircraft.

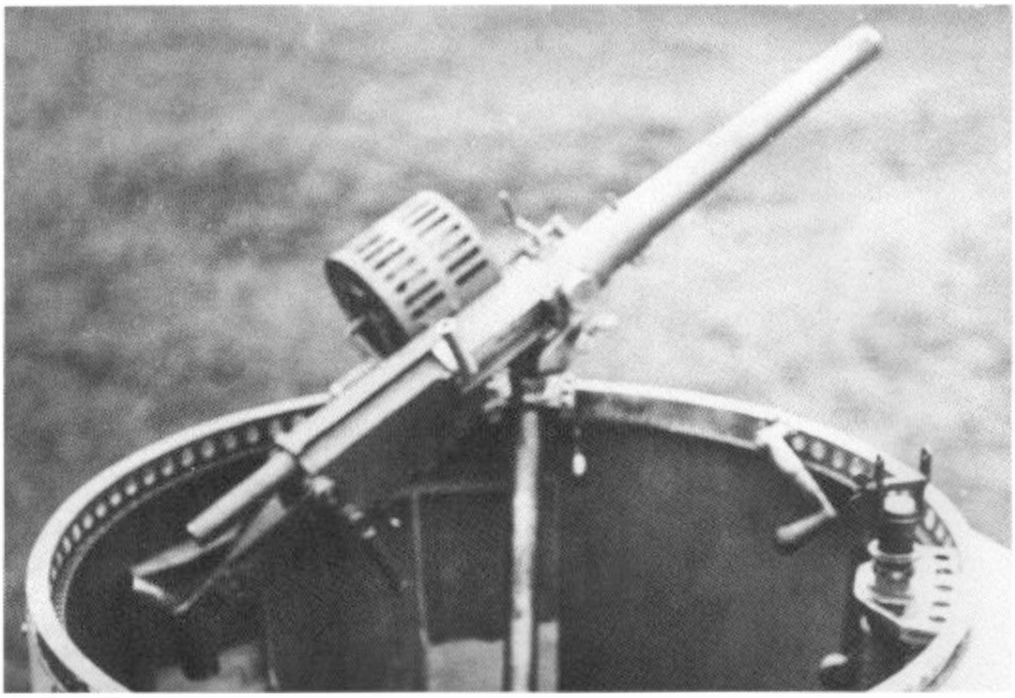
46. Finally a task for the man in the middle! While Ursinus swings a 2 cm Becker cannon in the nose, another gunner demonstrates the fixed pivot holding the Parabellum machine gun.

47. This Gotha G.I has a centre machine-gun ring which appears undersize in relation to the task involved. The centre support holds an anemometer speed indicator.

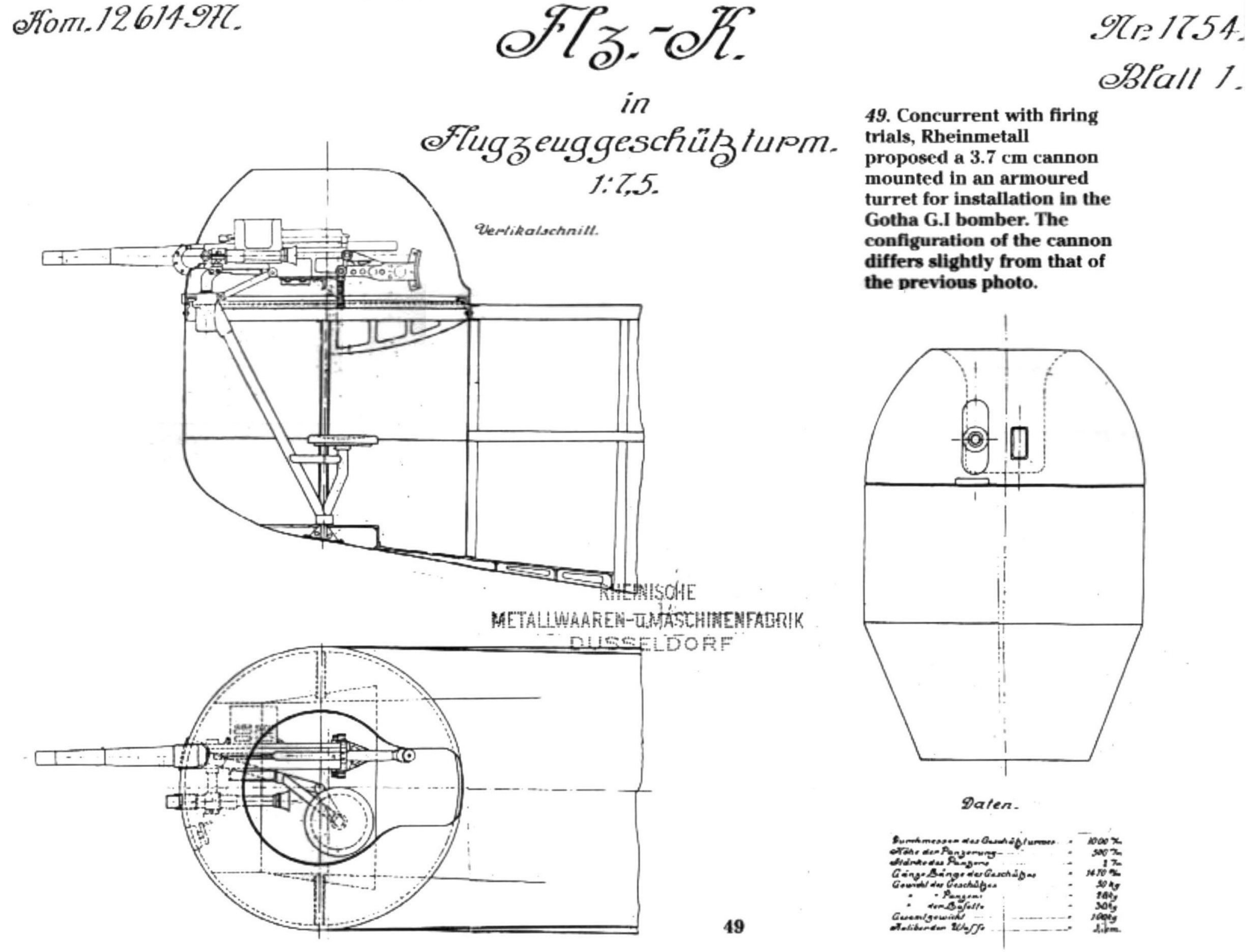
48. **A somewhat fuzzy photo of a 3.7 cm Rheinmetall cannon installed in a Gotha G.I bomber for airborne trials in late 1915.**

Opposite page:
50. **That the nose turret was sufficiently large to hold two weapons is demonstrated by this photograph. A Parabellum machine gun and an early model of the Becker cannon mounted in the Friedel-Ursinus B.1092/14 or Gotha G.I.**

51. **Inside the nose turret of the Gotha UWD. Compass, clock, chart table, tools and empty bomb rack are in evidence.**

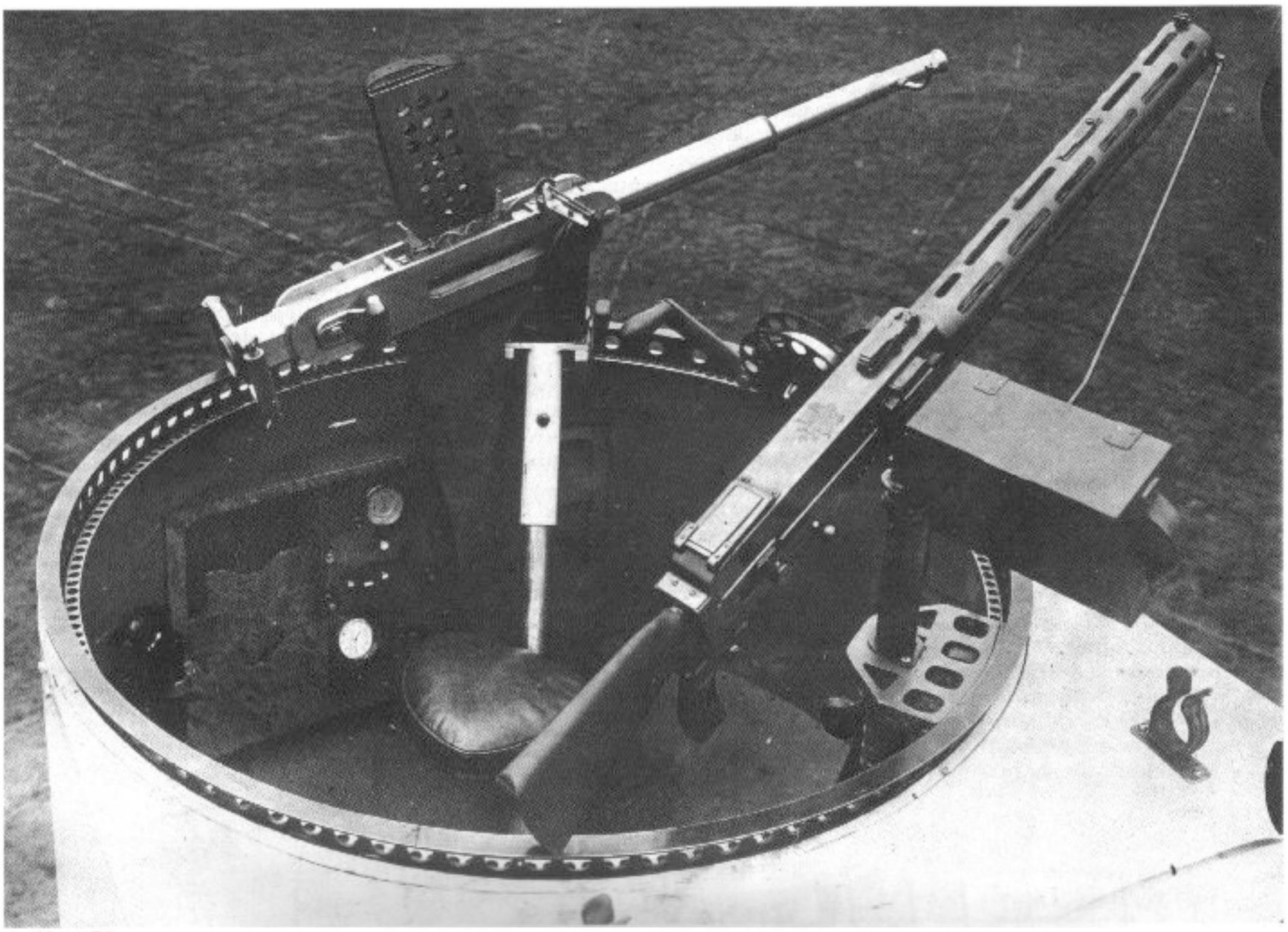


▲ 48 ▼ 49

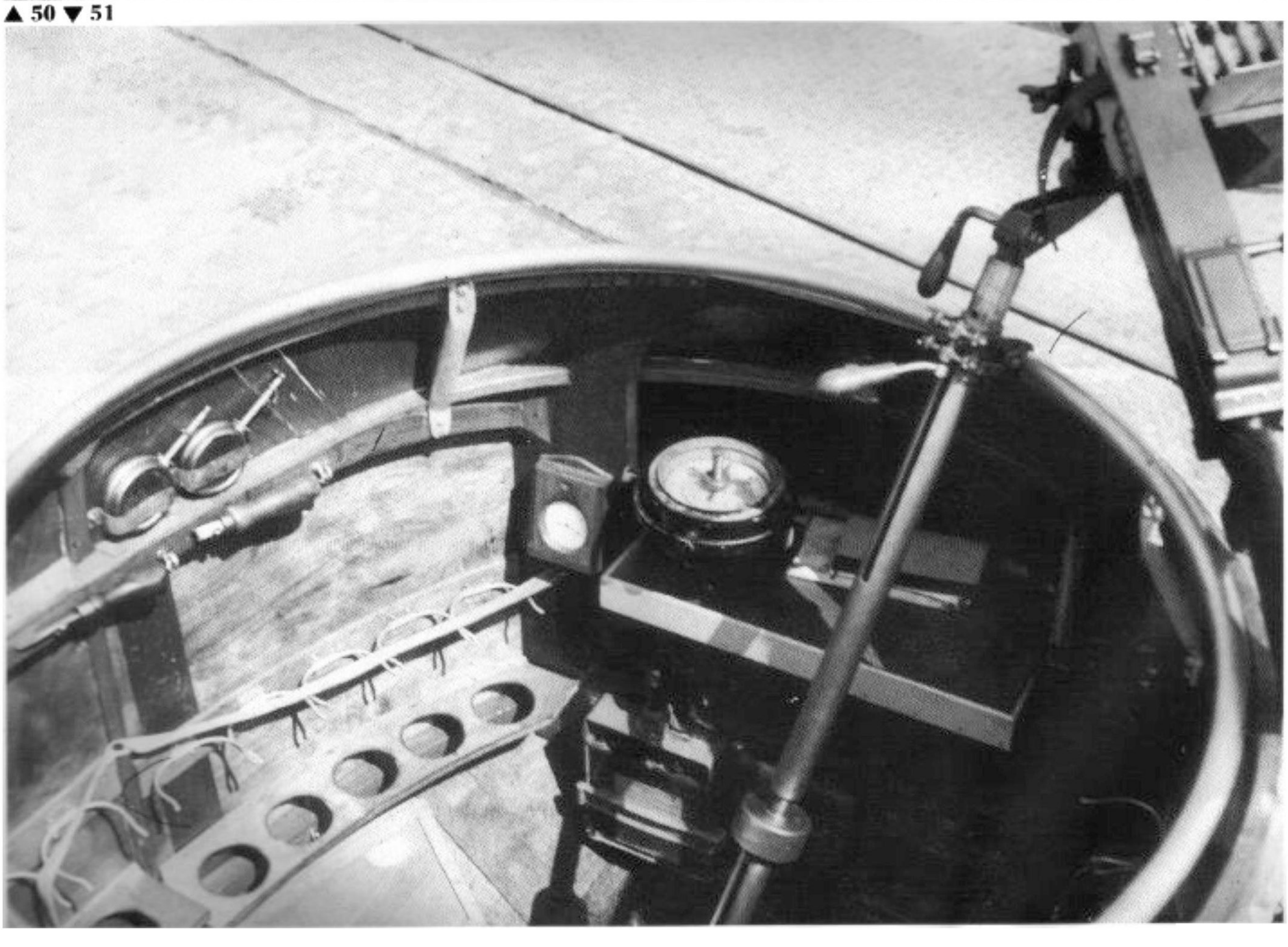

Kom.12614 M.
Flz.-K.
in
Flugzeuggeschützturm.
1:7,5.
Nr. 1754.
Blatt 1.
Vertikalschnitt.
RHEINISCHE
METALLWAAREN- u. MASCHINENFABRIK
DÜSSELDORF
Daten.
Durchmesser des Geschützturmes - 1000 mm
Höhe der Panzerung - 500 mm
Stärke des Panzers - 7 mm
Gänge Länge des Geschützes - 1410 mm
Gewicht des Geschützes - 50 kg
" " Panzers - 164 kg
" der Lafette - 30 kg
Gesamtgewicht - 1??kg
Kaliber der Waffe - 3,7 cm

49

49. **Concurrent with firing trials, Rheinmetall proposed a 3.7 cm cannon mounted in an armoured turret for installation in the Gotha G.I bomber. The configuration of the cannon differs slightly from that of the previous photo.**



▲ 50 ▼ 51

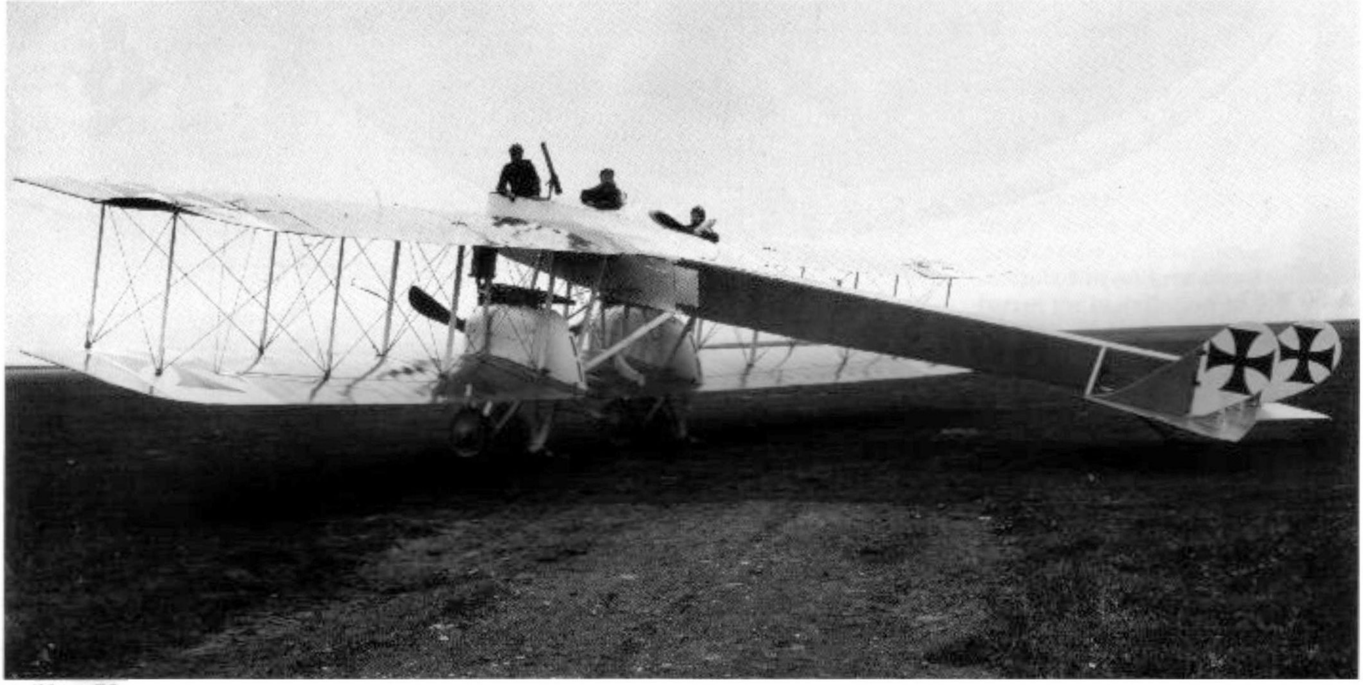


FABRIC - camouflage and markings by Ray Rimell

Trying to establish the true colours of the Friedel-Ursinus and Gotha G.I battleplanes has proved difficult and irksome. No surviving documents concerning their finishes are known to the writer, nor are there any useful capture reports available to afford us further clues. The upshot of this is a total reliance on the photographic record and, as splendid as many of the studies presented on these pages are, they frequently pose more questions than answers. With such caveats the modeller is strongly advised to proceed with caution and treat the following observations as a general guide only rather than a definitive record.

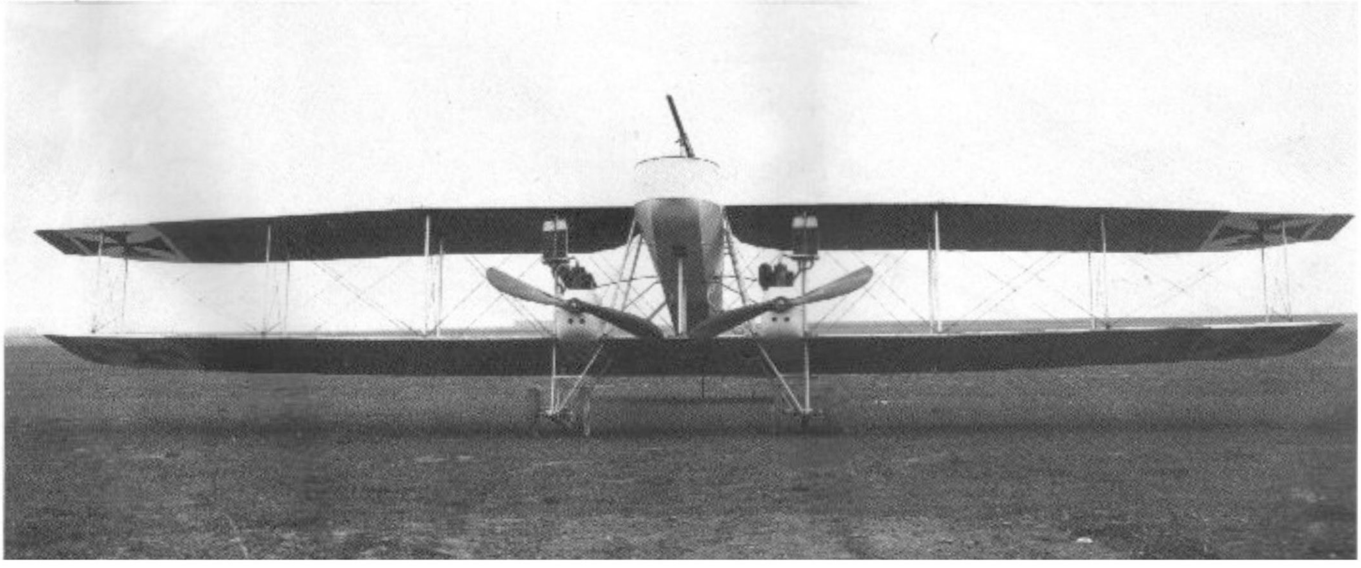
It helps us to know the materials used in the construction of these aeroplanes and the author has already told us of the armour plating of engine nacelles and forward fuselage. These areas are invariably lighter in appearance than the remainder of the fabric-covered airframe and at first sight appear to be in an untreated, natural finish. Close study of the photos does suggest otherwise for the overall look is even and not highly reflective - it also matches wing and undercarriage struts. I hesitate to use the term 'all' but I'm fairly sure that most examples had these metal areas overpainted in a light grey paint, drying to a semi-matt sheen - the **Methuen** book covers remain firmly closed in this instance.

The remainder of the airframe was finished in one overall colour - a light shade on some photos, on others it's quite dark. Is this due to film stock, lighting conditions or several shades being employed? Frankly, I'm still uncertain. I'm inclined to think these early machines had their fabric areas merely clear-doped and varnished. Certainly some examples are finished this way, the black



▲ 52 ▼ 53

***52.* Oskar Ursinus in the centre cockpit proudly poses with the first Gotha G.I to be completed. It was designated G.9/15. The pilot is holding a stuffed *Glücksschwein* (good luck pig), probably not a bad idea when flying this aircraft!**



***53.* Gotha G.I 9/15 was the only aircraft in the first series to have 160-hp Mercedes D.III engines. These drove counter-rotating airscrews.**

fuselage serial numbers contrasting starkly with the plain linen fabric. Others appear darker overall, while a few show darker fuselages and tail units to contrast with the clear-doped wings. Some previous artists have shown this as dark green - but was it really? Could '*Feldgrau*' have been used as seen on several contemporary *Eindecker* and AEG types?

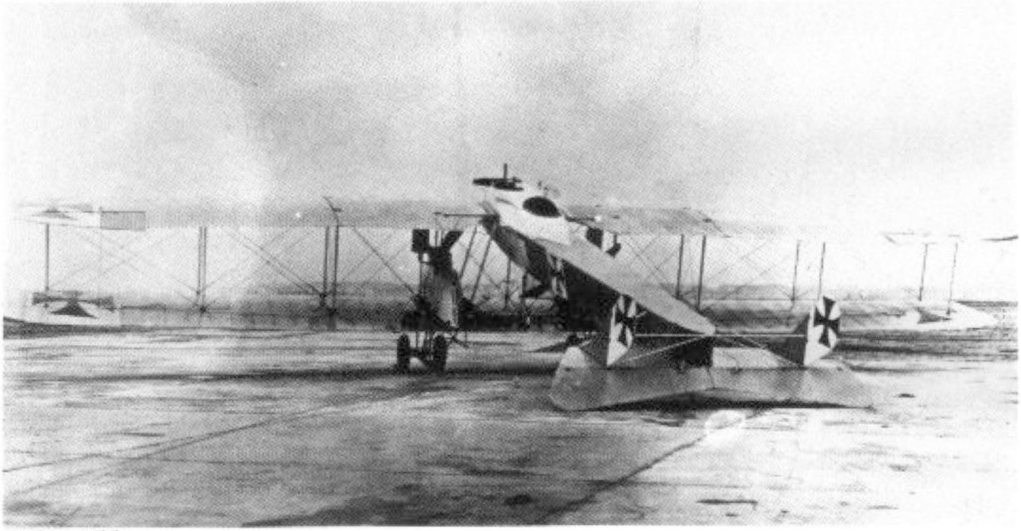
Whatever the colour employed, if a colour *was* employed, it could not have been that dark as serial numbers are clearly visible. I don't have a satisfactory answer and modellers will need to scrutinize the available photos closely before finalizing the finish of their models.

For the UWD seaplane; it appears yet again that a clear-doped finish was used with wooden areas of fuselage and floats protected by glossy marine varnish. As with the landplanes, engine nacelles and struts were painted pale grey.

Markings

Sadly no G.I battleplanes wore the spectacular decor some of their antecedents carried and those few that were individually marked reveal simple names or monograms in black. The Oskar Ursinus trademark (see **Fig.1**) was seen on several G.I examples, usually on the fuselage flanks under the rear cockpit position. *Eiserne Kreuz* was applied to large white fields on wings and white-painted rudders - but not on the fuselage sides of most Ursinus versions; these were reserved for the serial number. The fuselage cross appeared on G.I production machines and on various examples of both types the wing crosses were applied on both upper and lower surfaces of every panel - eight positions in all - but this number was later reduced. *Do* check those photos!

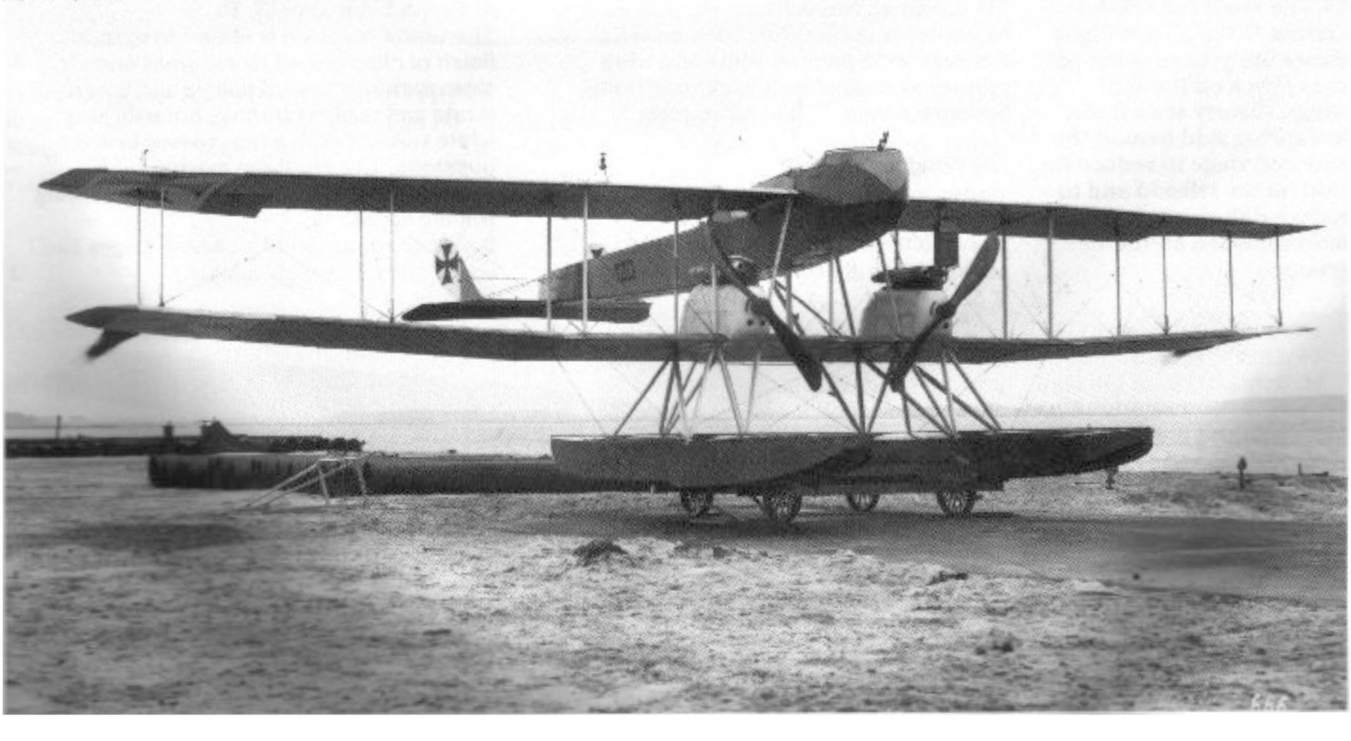
It is regretted that we are unable to present a more detailed analysis of G.I colours and markings but lack of documentation rules this out. Readers with reliable source material are invited to submit this to the editorial address for future reprints or discussion within the pages of *WINDSOCK International*. We're waiting!

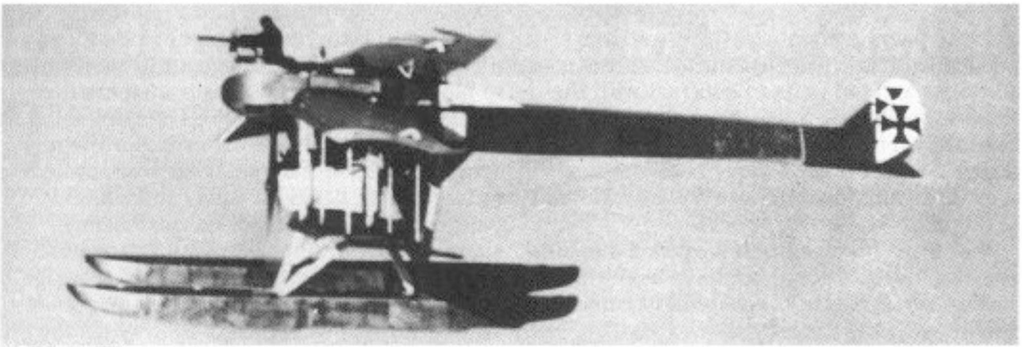


▲ 54 ▼ 55

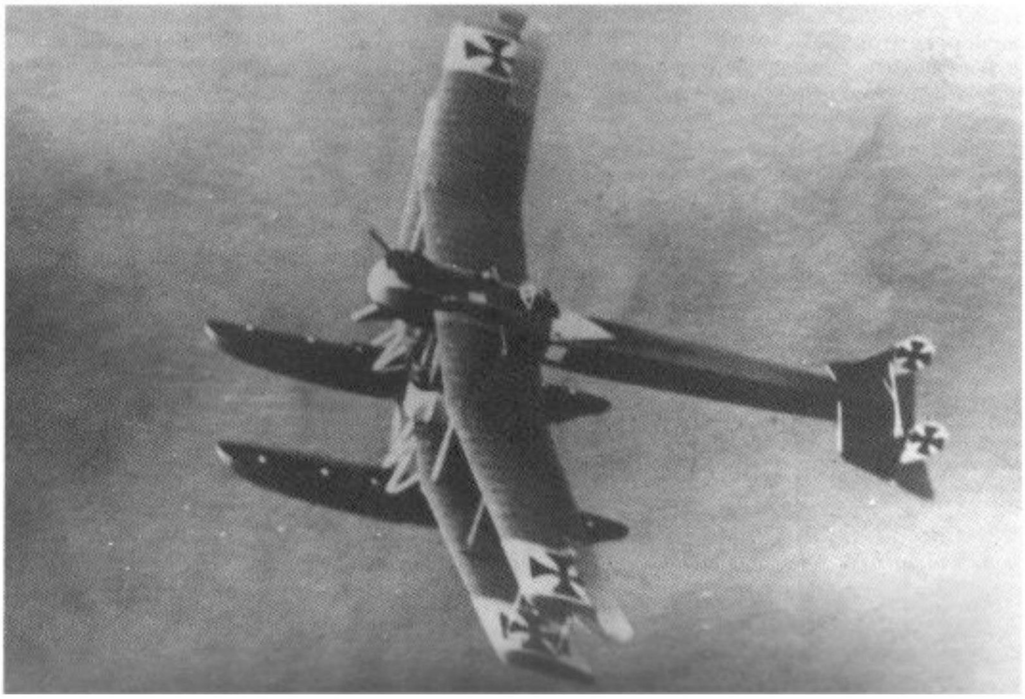
***54.* The Gotha G.I (possibly 43/15) on the concrete apron at Adlershof(?) provides a fine view of the faired crews' compartment and tail assembly.**

***55.* Most new aircraft sent to the *SVK* were photographed upon arrival. Here the Gotha UWD (*m/n* 120) poses on the ramp at Warnemünde in early January 1916 after being assembled for flight tests. An anemometer and pitot-tube speed indicators are mounted on the upper wing. Red identification pennants flutter from the wing tips.**





▲ 56 ▼ 57



***56.* Gotha UWD in flight with a three man crew aboard. In the nose, the bomb launching tube is clearly visible.**

***57.* During its navy service between February and October 1916, aerodynamically-balanced ailerons were installed on the Gotha UWD.**

***58.* The modified Friedel-Ursinus B.1092/14 in flight shows the generous use of sweepback on the top wings. Clearly seen is the leaf-spring skid behind the undercarriage to reduce the load on the tailskid and to reduce deformation of the fuselage when on the ground.**

KEY TO COLOUR PLATES;

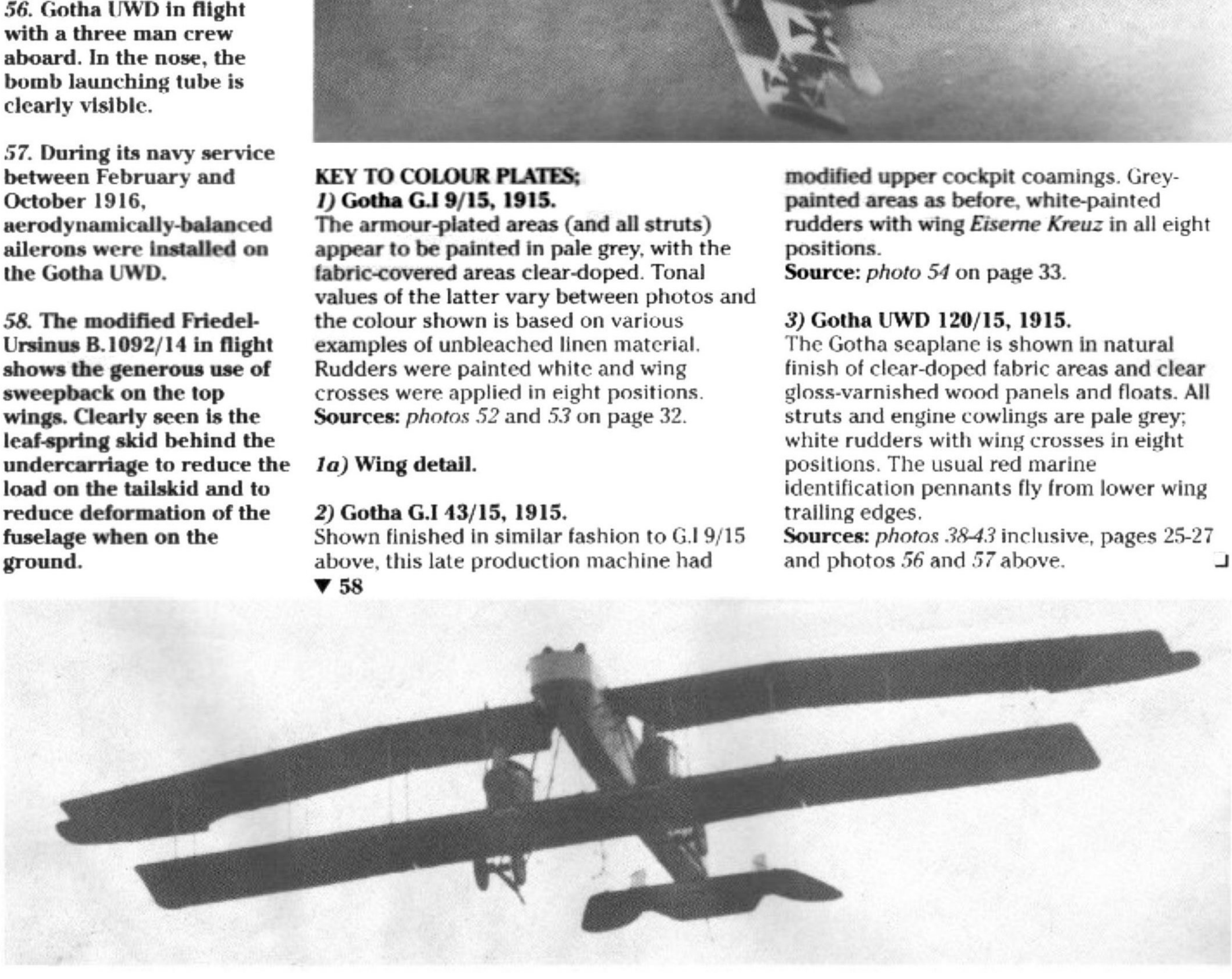
***1)* Gotha G.I 9/15, 1915.**
The armour-plated areas (and all struts) appear to be painted in pale grey, with the fabric-covered areas clear-doped. Tonal values of the latter vary between photos and the colour shown is based on various examples of unbleached linen material. Rudders were painted white and wing crosses were applied in eight positions.
Sources: *photos 52* and *53* on page 32.

***1a)* Wing detail.**

***2)* Gotha G.I 43/15, 1915.**
Shown finished in similar fashion to G.I 9/15 above, this late production machine had modified upper cockpit coamings. Grey-painted areas as before, white-painted rudders with wing *Eiserne Kreuz* in all eight positions.
Source: *photo 54* on page 33.

***3)* Gotha UWD 120/15, 1915.**
The Gotha seaplane is shown in natural finish of clear-doped fabric areas and clear gloss-varnished wood panels and floats. All struts and engine cowlings are pale grey; white rudders with wing crosses in eight positions. The usual red marine identification pennants fly from lower wing trailing edges.
Sources: *photos 38-43* inclusive, pages 25-27 and photos *56* and *57* above. ❏

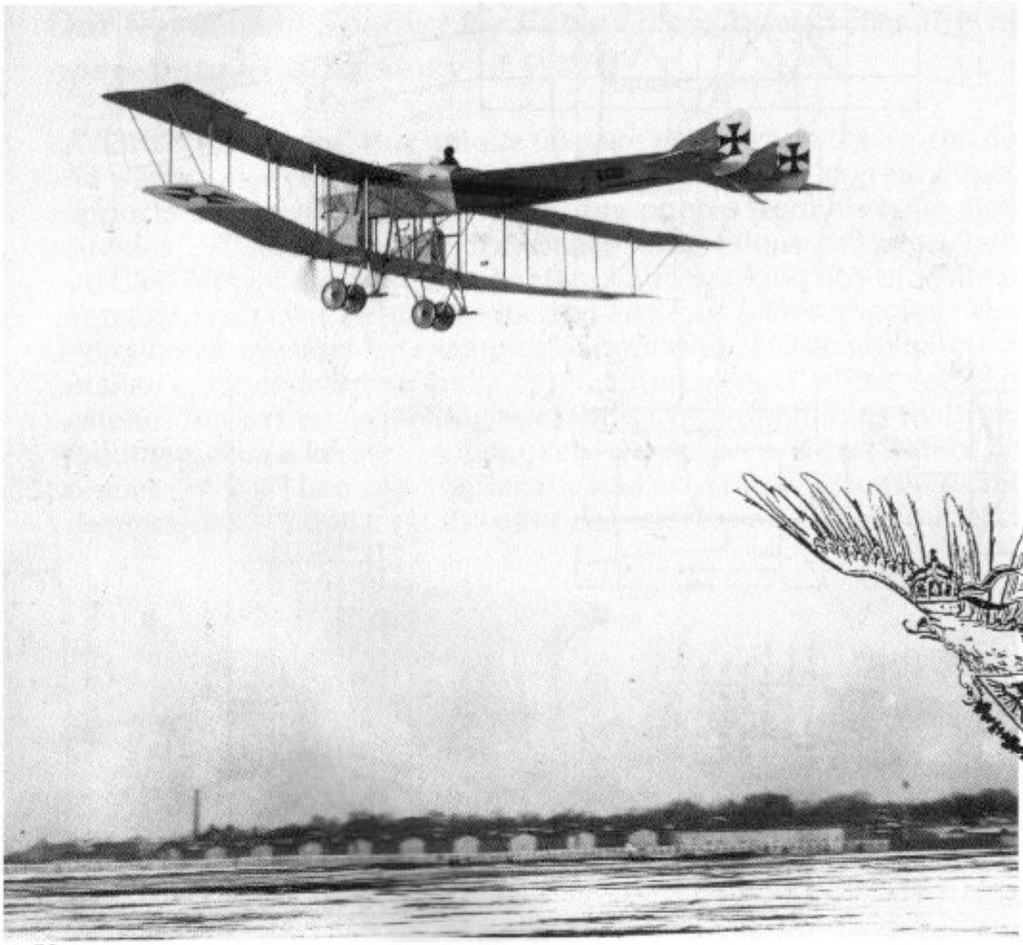
▼ 58



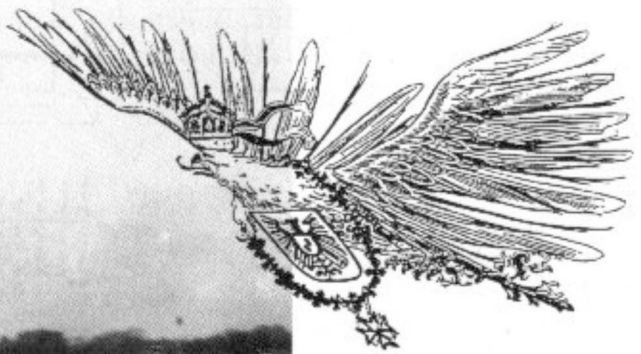
APPENDICES

TABLE 1 - GOTHA G.I FRONT-LINE INVENTORY

	1915				1916						1917		
	30	31	31	31	28	30	30	31	31	31	28	30	30
TYPE	Jun	Aug	Oct	Dec	Feb	Apr	Jun	Aug	Oct	Dec	Feb	Apr	Jun
Gotha G..I			5	6	1		1	1	1				
AEG G.I/G.II	2	6	15	13	12	7	4	4	4	2	2	1	1



▲ 59



▲ 60

Friedel-Ursinus B.1092/14 SPECIFICATIONS

Engine:	Two 100-hp Mercedes D.I	
Wing:	Span Upper	22 m
	Span Lower	19 m
	Chord Upper	2,2 m
	Chord Lower	2,2 m
	Dihedral Upper	none
	Dihedral Lower	5 deg
	Sweepback	4 deg
Maximum Speed:	90-95 km/h	

GOTHA G.I SPECIFICATIONS

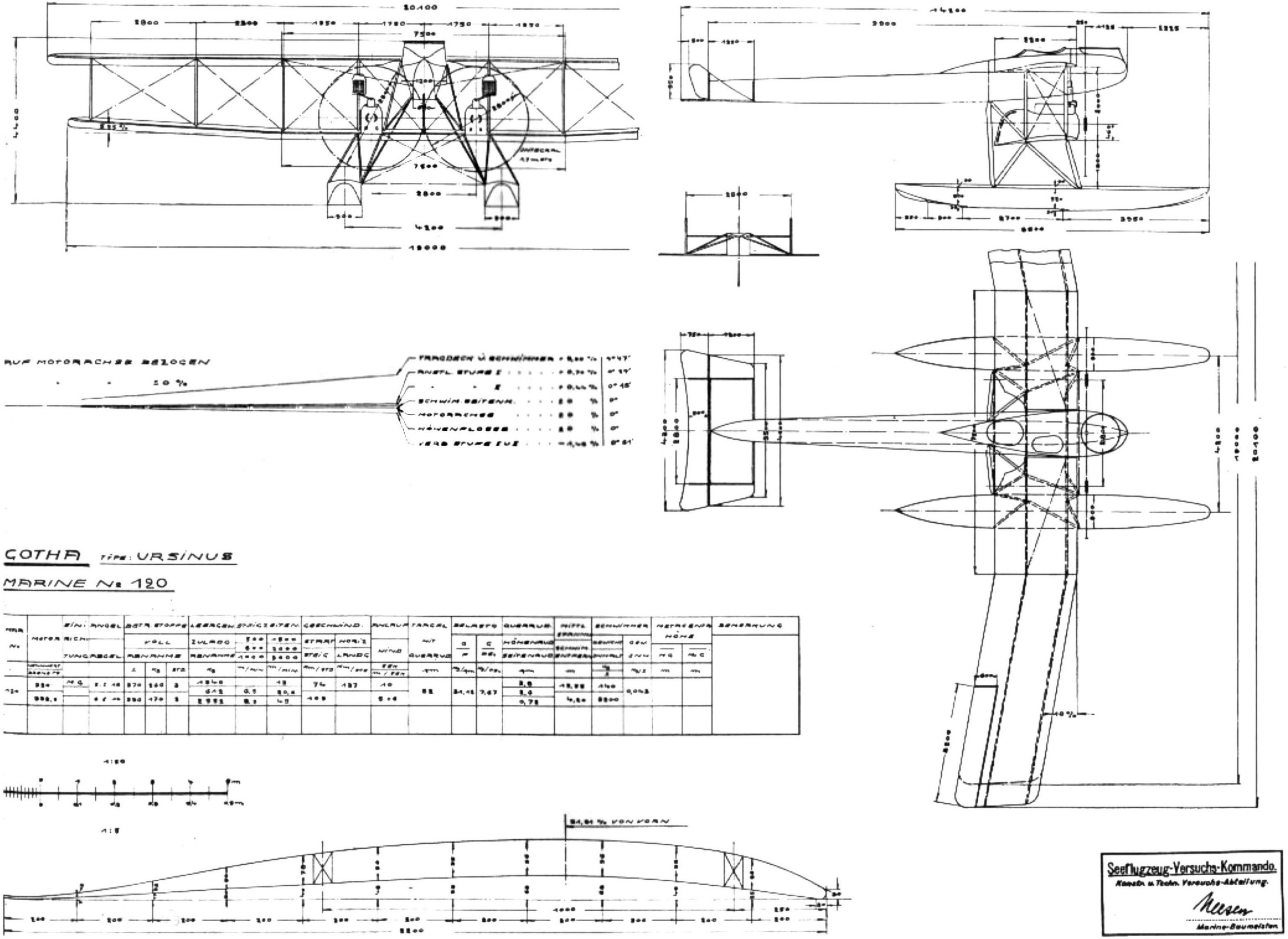
Engine:	Two 150-hp Benz Bz.III	
Wing:	Span Upper	20.30 m
	Span Lower	19.70 m
	Chord Upper	2.20 m
	Chord Lower	2.20 m
	Sweepback	10 deg
	Gap	1.95 m
	Stagger	none
	Area	82.00 m2
General:	Length	12 m
	Height	3.9 m
	Empty Weight	1800 kg
	Loaded Weight	2966 kg
Maximum Speed:	130 km/h	
Climb:	2000m	47 min

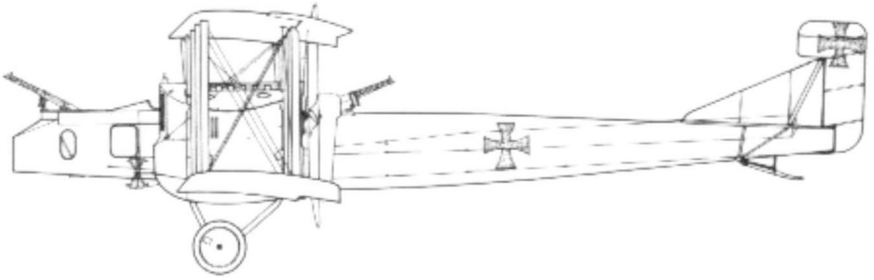
GOTHA UWD (M/N 120) SPECIFICATIONS

Engine:	Two 160-hp Mercedes D.III	
Wing:	Span Upper	20.10 m
	Span Lower	19.00 m
	Chord Upper	2.20 m
	Chord Lower	2.20 m
	Dihedral Upper	none
	Dihedral Lower	5.25 deg
	Sweepback	10 deg
	Gap	2.00 m
	Stagger	none
	Area	82 m2
General:	Length	14.20 m
	Height	4.40 m
	Empty Weight	1940 kg
	Loaded Weight	2552 kg
Maximum Speed:	137 km/h	
Climb:	1000m	8.5 min
	2000m	20.5 min
	3000m	45 min

59. **The unmistakable Friedel-Ursinus B.1092/14 buzzing the *FEA* 3 airfield on 5 February 1915. The pilot's remote position and restricted view of the undercarriage made it difficult to judge touch-down.**

60. **The patriotic Oskar Ursinus trademark, registered on 6 September 1915, was applied to some Gotha G.I aircraft.**


GOTHA Type: URSINUS
MARINE No 120
AUF MOTORACHSE BEZOGEN
10 %
TRAGDECK U. SCHWIMMER
ANSTL. STUFE I
SCHWIM. SEITENK.
MOTORACHSE
HÖHENFLOSSE
VERB. STUFE I U. II
MOTOR
BETR. STOFFE
LEERGEW.
STEIGZEITEN
GESCHWIND.
ANLAUF
TRAGFL.
BELASTG.
QUERRUD.
MITTL. SPANNW.
SCHWIMMER
BEMERKUNG
1:50
1:5
34,84 % VON VORN
Seeflugzeug-Versuchs-Kommando.
Konstr. u. Techn. Versuchs-Abteilung.
Marine-Baumeister.



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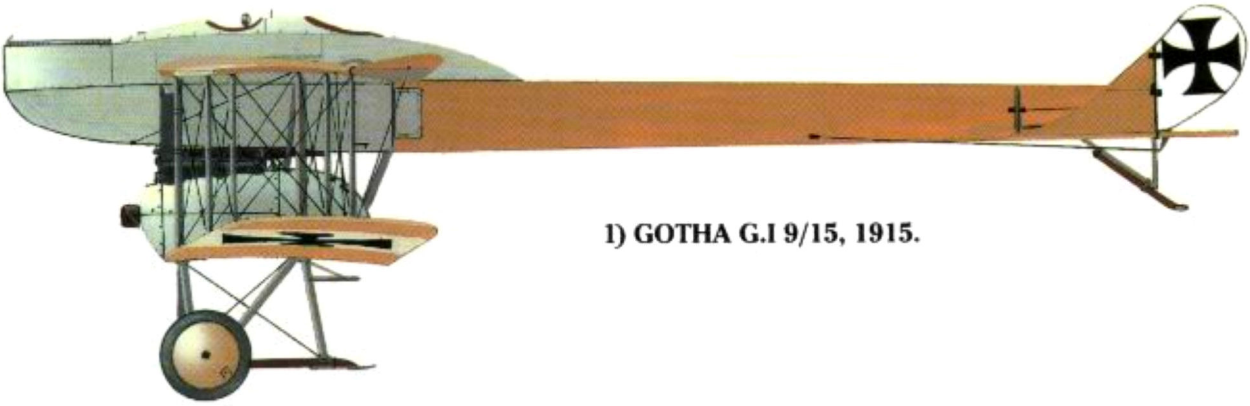
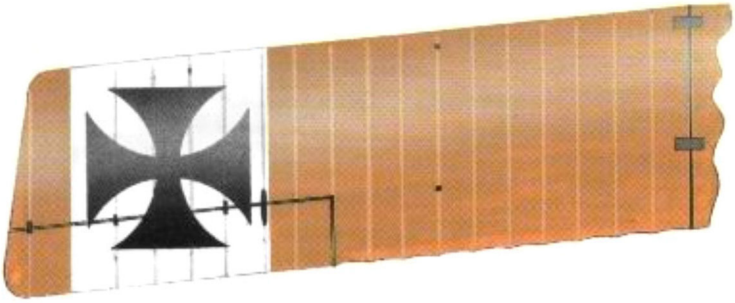
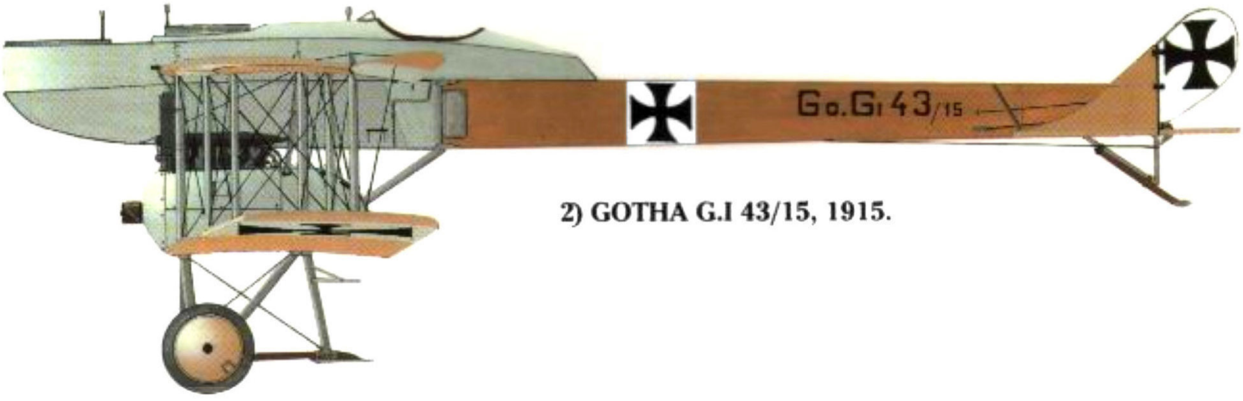


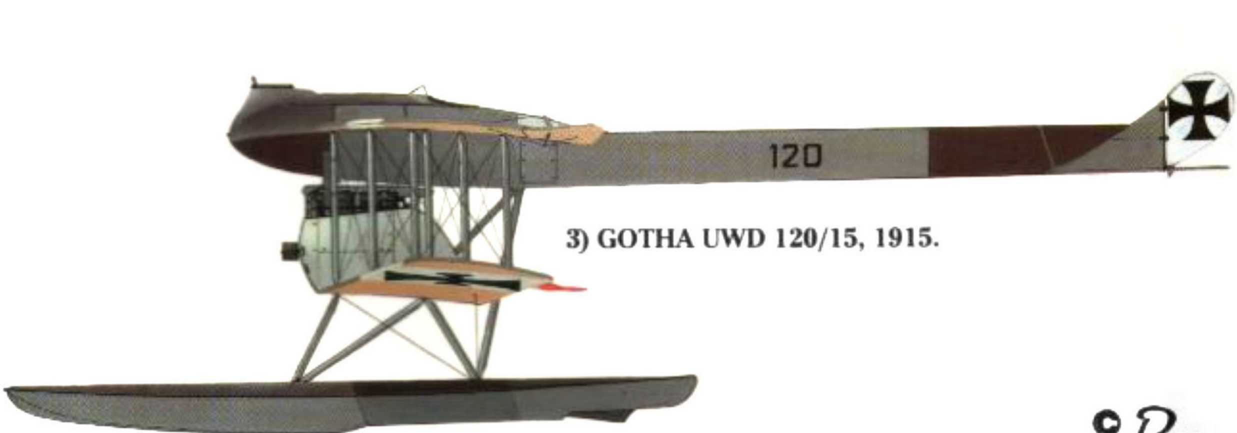
1) GOTHA G.I 9/15, 1915.

1a) Wing detail





2) GOTHA G.I 43/15, 1915.



3) GOTHA UWD 120/15, 1915.

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